Digitized by the Internet Archive
in 2007 with funding from
Microsoft Corporation

http://www.archive.org/details/architecturalrec16newyuoft

531

(4)

The

Architectural Record.

VOL. XVI. JULY, 1904. No. 1.

"HILLAIR," THE COUNTRY HOUSE OF PAUL GILBERT THEBAUD, ESQ., WHITE PLAINS, N. Y.

IN selecting the fine site on high land overlooking a rolling country on the south, with an extended view of Long Island Sound, four miles distant, the owner of "Hillair" has afforded the architects an excellent opportunity for architectural effect. It is to be regretted that our American life requires the completion of a country home within two or three years at most, and, therefore, in this article the views produced are of the building itself rather than of the whole property not yet entirely laid out. The owner has spared no expense in carrying the work through, but a homogeneous whole cannot be expected within several years, because the planting of trees and shrubs, and all that pertains to the beauty of a finished country place takes time and much thought to perfect.

The house itself, facing south, is seen a distance of several miles away, and is a fairly true example of Georgian architecture. The plan being symmetrical, a necessity in this style, it has the usual porch, but on the rear or south front, and not at the entrance which is on the north. The material from which "Hillair" is built is Indiana limestone of the gray variety—the surface of the walls being of coursed ashlar. The original design shows a house of brick, with the same limestone trim, cornice and columns as now exist. The change to stone enhances the general good appearance, and is in fact more in keeping with the design. The semi-hexagonal "porte-cochère" on the north is a reasonable departure from the Georgian period, and is distinctly eclectic in character, but entirely reasonable in its purpose and form. The classical character of the period is well exhibited in the entablature and columns of the Ionic order, on every side of the house. The owner insisted on a veranda surrounding the entire plan. To compass this result, and adhere to the style, portions of the promenade

93796
3019108

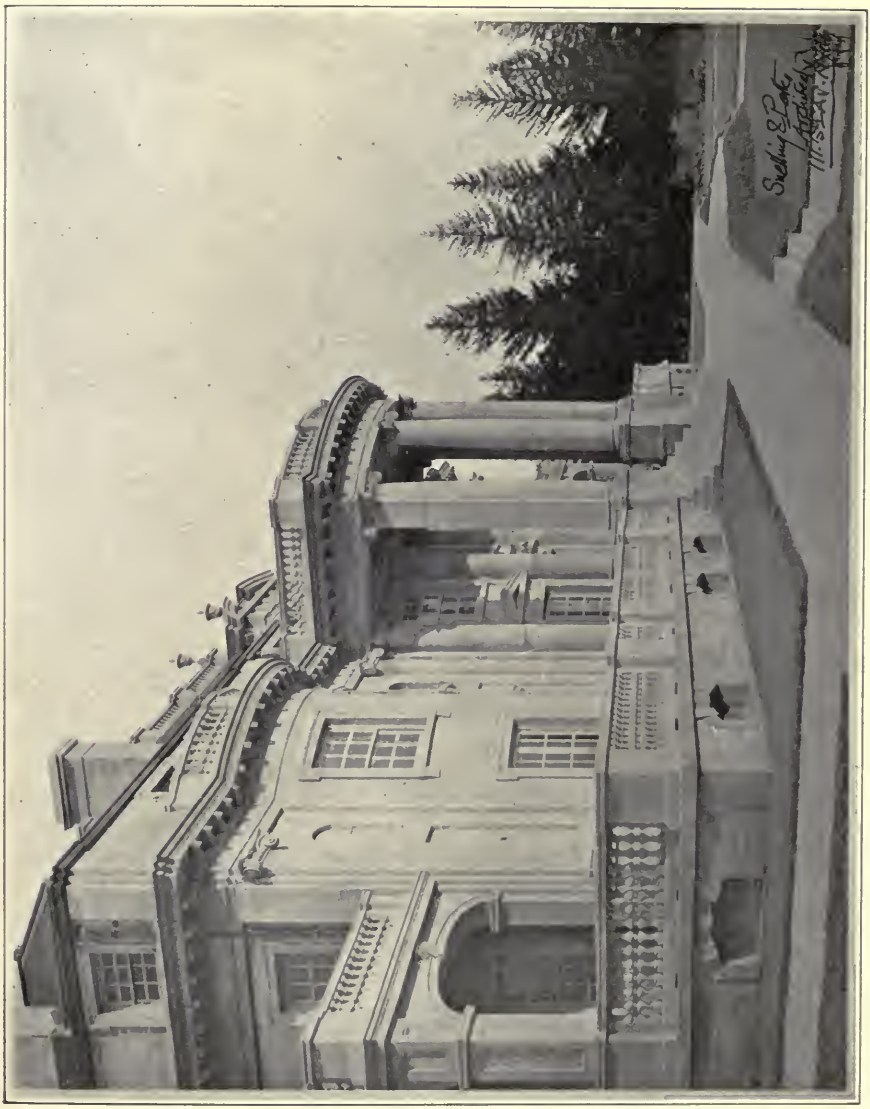
Copyright, 1904, by "Architectural Record Company." All rights reserved.
Entered May 22, 1902, as second-class matter, Post Office at New York, N. Y., Act of Congress, of March 3d, 1879.

NA
1
A6
v.16



"HILLAIR."

White Plains, N. Y. The Residence of Paul Gilbert Thebaud, Esq. Snelling & Potter, Architects.



"HILLAIR."

The Residence of Paul Gilbert Thebaud, Esq. Snelling & Potter, Architects.

White Plains, N. Y.



THE VERANDA OF "HILLAIR."

The Residence of Paul Gilbert Thebaud, Esq.

White Plains, N. Y. Snelling & Potter, Architects.

were left uncovered, but bounded by balustrades, making an appearance on north and south very similar to a terrace though distinctly an integral part of the building, as evidenced by the basement windows beneath the balustrade. The main porch mentioned is two stories high with a Guastavino arched ceiling. On either end, east and west, are the true verandas consisting of colonnade, and vaulted overhead. The surface of the veranda floor is cement tile 8x8 inches square of a light red color, and beautifully smooth, though of extreme difficulty to lay owing to the brittleness of the material. The main roof of the house is covered with a light red slate.

Alighting at the front entrance we have to ascend three granite steps to reach the main threshold. Here we face the large entrance doorway spanned by an elliptical arch of ten feet. The main arch is flanked by two narrow arches, and all three are filled in front of the plate glass openings with a severe and carefully designed grille work or heavy bronze metal, the doors themselves weighing perhaps 800 pounds apiece. Coming through the threshold we enter the main vestibule, floored in green veined Vermont marble, with the wall covered to the ceiling with Pavonazza marble. From the vestibule we pass through a glazed door to the staircase hall. This is the most elaborate piece of design in the house due to the character of the staircase, and the supporting members beneath the gallery. Above, at the third floor level, is to be seen a true elliptical dome light of late English Renaissance design.

The south hall is presumably a living-room rather than hall, opening with three pairs of folding sash on the main south porch. It is severe in detail, and is between the dining-room on the left and the library to the right, the former paneled in mahogany nearly to the ceiling of the later Renaissance period. The library is Empire and joins the south hall through glazed doors beneath two barrel vaults on either side of the hall chimney, giving an extended vista from the dining-room east wall to the west wall of library, 90 feet in length.

No bookshelves are adorned with more beautiful bindings, and few libraries of the same size can boast of a better selection of books than those of "Hillair." From the library we pass into the salon. Stepping back from the period of the Empire to the time of Louis XV., this room was designed to accommodate the furniture, heirlooms of the family. But like many such inheritances, while the typical furniture is beautiful and true to this epoch, there are pieces either too modern to belong with the better pieces, or else are altogether out of keeping. The room is paneled to the ceiling, and though too low for the best work in this lofty style, is faithfully carried through in detail. Beyond the salon we have



THE STAIRCASE HALL OF "HILLAIR."
The Residence of Paul Gilbert Thebaud, Esq. Snelling & Potter, Architects.
White Plains, N. Y.

the billiard-room, a dark stained teak wood room, the trim and wainscoting being of Indian carved members.

Passing through the vestibule again we enter to the east the owner's den. This is purely a man's room—all sides are covered with gun cases to the ceiling, the design is late German Gothic, and of dark oak with a cut stone fireplace on a large scale. A large butler's pantry is between the dining-room and den, but a space for a huge silver safe and a small toilet intervenes between the den and the pantry. A feature in the pantry is the electrical plate-warmer.

All the remaining service for the household is under the first floor. The kitchen is beneath the pantry, the servant's hall beneath the dining-room, the laundry beneath the den, the ceilings of which being several feet above grade, give good opportunity for light and air. The second floor contains all the owner's and guests' bedrooms, the boudoir and the dressing-rooms. To each bedroom is attached a bathroom. The owner's rooms open on a supplementary corridor which gives in turn on to the staircase hall gallery. All of the second floor rooms may be reached by domestics without crossing the gallery.

The other rooms on the second floor are simply treated with a dado, and papered with English papers, the floor being covered with handsome rugs. In fact, the rugs through the house owned and purchased by the owner are of interest. The floors throughout are solid oak floors, herringboned pattern, highly polished. Descending to the basement we find a very long kitchen, tiled entirely from floor to ceiling in white with gray and blue pattern tile on the floors. On the north of the kitchen is the laundry, the largest room in the house, which is paneled and floored in one continuous piece of Jenner's flooring, salmon colored.

On the south of the kitchen is the passageway adjoining the servants' hall leading to one of the outer doors and a servants' bath. The chef's room is again beyond and adjoins the servants' hall. The boiler room is in the centre of the house beneath the staircase hall. To the west of the boiler room are the cellars, storerooms, valet's room, and the like.

The third floor is reached by the secondary flight of stairs which extends in four runs from the basement to the roof. The roof deck is surrounded by a balustrade, and from this point a far more extended and beautiful view of the surrounding country is afforded than from any place within ten miles. On the third floor we find a play room for the children surrounding the dome light, which is in turn surrounded by the corridor, from which corridor opens the sixteen rooms for domestics. In addition to these the two bathrooms, a large cedar room and a trunk room. Above the third



THE HALL OF "HILLAIR."
The Residence of Paul Gilbert Thebaud, Esq. Snelling & Potter, Architects.
White Plains, N. Y.

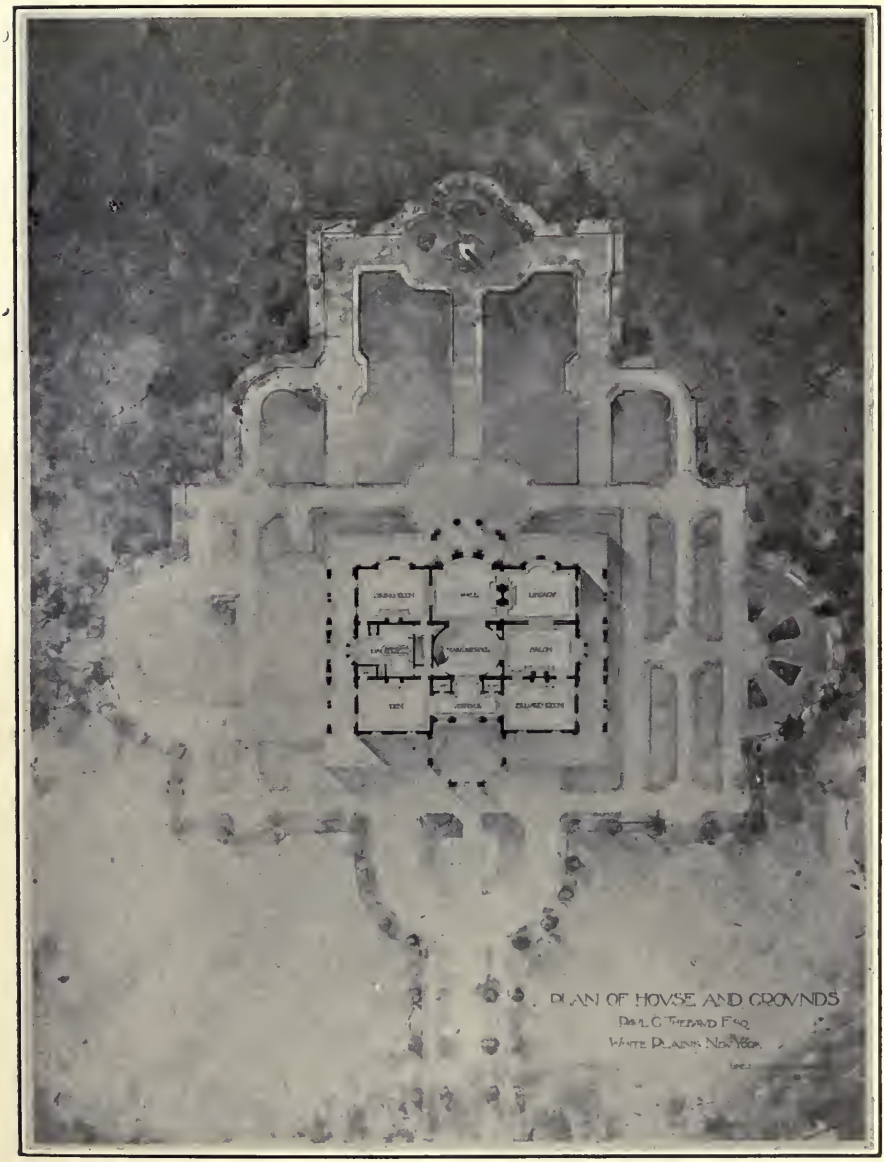


THE LIBRARY OF "HILLAIR."
The Residence of Paul Gilbert Thebaud, Esq. Snelling & Potter, Architects.
White Plains, N. Y.





THE DINING-ROOM AND THE SALON OF "HILLAIR."
The Residence of Paul Gilbert Thebaud, Esq.
White Plains, N. Y. Snelling & Potter, Architects.



THE PLAN OF "HILLAIR."
The Residence of Paul Gilbert Thebaud, Esq.
White Plains, N. Y. Snelling & Potter, Architects.

floor is a mezzanine on which floor are steel tanks carrying the water supply of the house, of some 700 gallons capacity each. These tanks are carried on steel girders which are supported on four steel columns of forty feet in height independent of the general construction of the house.

Descending to the second floor again you find the boudoir is on the southwest corner designed in Louis XVI. style, and filled with appropriate furniture, the walls lined with silk in panels. Next adjoining the boudoir is the largest and most important bedroom in the house, and this is also done in the same style, the doors in both rooms being cut in the panels, and are blind or "invisible." The electric fixtures should not be overlooked as they are elaborate and well executed, designed to match the style of the various rooms.

William Heming.



MEMORIAL TABLET TO THE REV. RICHARD SALTER STORRS.
Executed by Henry Bonnard Co.

RECONSTRUCTED BUSINESS HOUSE FRONTS IN NEW YORK.

IN the Borough of Manhattan there are annually more buildings reconstructed for various purposes than there are new buildings built, and as a large percentage of these are altered for business purposes, much benefit would accrue to the apearance of the city from well directed thought and study spent on the building that is to be converted from a use for which it was originally designed to one that changed circumstances require. Yet in the great majority of cases the solution of the alteration problem is left to a builder, who approaches it solely from a utilitarian standpoint, and as a consequence, our most prominent thoroughfares, particularly those that have been residential and are now used for business, are disfigured in a way that cannot but be displeasing to anyone who has a pride in the city or love of the beautiful. As the business sections are continually changing, we are often confronted with the apparition of what was an orderly and well designed dwelling house, now supported on stilts in the form of iron columns, and these surmounted with a galvanized cornice, the upper part of the building being apparently held up by the plate glass show windows, the object being to get, first, as cheap an alteration as possible, and secondly, to secure a maximum of income by getting as much show window as the law will allow.

Take Fifth avenue for example and note in how few of the buildings on this, probably the most famous thoroughfare of its kind in the United States, has the slightest effort been made to add to the architectural beauty of the avenue in the change from the old, and in some cases dignified and well proportioned dwellings, to the hybrid buildings that are called "business premises."

It is conceded that architecture has a place in modern civilization, and that a city, well laid out with broad avenues and parks, good landscape architecture and pleasing buildings has a distinct advantage over one that is lacking in these advantages, for visitors are attracted, and the moral and artistic feeling of the people is quickened by harmonious surroundings. Take Paris for instance; note the good taste and air of refinement evidenced everywhere in this city by its attractive buildings. How much it owes to its architects and artisans in this respect! Millions of dollars are brought each year as a tribute to those who have helped to make the city a constant delight and pleasure to the tourist. This is also true of many other cities on the continent, and one of the pleasures

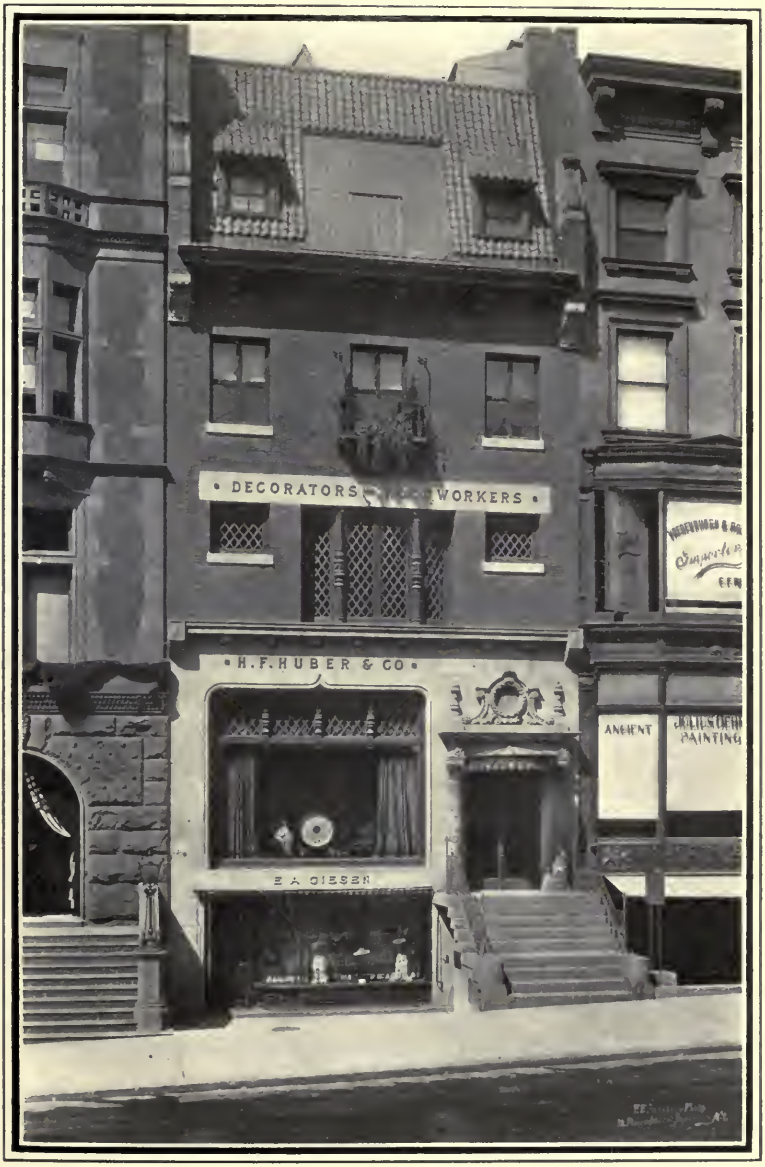
of foreign travel is to explore out of way streets and avenues, and find the most charming old shops and buildings which have had thought expended in the design of the façade, and in the use of materials, both in color and texture, and which express the life and taste of the inhabitants. Often a piece of well-designed wrought iron in the shape of a bracket holding a sign will arrest attention and pave the way for new discoveries.

But to come back to our own city. It can be shown that well-designed buildings with architectural fronts, pay better than slovenly altered makeshifts and cost very little more; for the money spent in shoring and underpinning the upper portion of the building will go a long way in the construction of a new front, which need not be expensive to be effective. Another fact that is becoming known to those who rent buildings is that a store front which has some pretentions to style attracts a more desirable class of tenants, will bring a larger rent and is less frequently vacant than does a front that puts up an ugly and mean appearance.

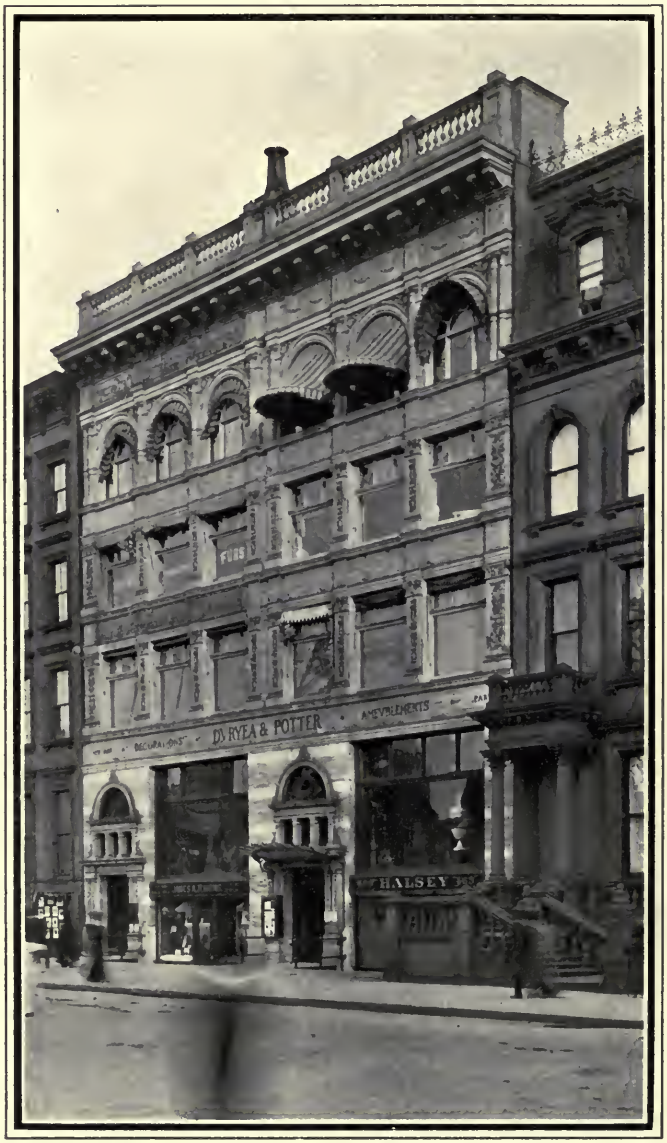
The accompanying photographs explain in a forcible manner how the general appearance of the city can be enhanced or marred by the aspect of the buildings on a business thoroughfare.

A very well designed front is that at No. 382 Fifth avenue. This is of brown stone and a brownish red brick with a recessed joint and laid in Flemish bond, giving all the value of a fabric, and this charasteristic when used with the so-called Harvard brick, is to the writer its chief charm; for if properly handled it is like a thread in a rug and may be "woven" into an architectural design with infinite variety, and by the use of various jointings of header and stretcher, i. e., the length and width of the brick, patterns may be worked out that will repay careful study. In the above building, while no effort has been made to treat the brick other than a soft color note in the composition, the whole is well proportioned, dignified and full of interest. Not a little of the effect is contributed by the carefully designed wrought iron balcony on the third story, and the effective doorway and marquise, the carving being very well conceived and executed, suggesting Italian Renaissance designs. The treatment of the main cornice is also worthy of note, as it is received by bracketted projections of brick, and the mouldings returned thereon, making a happy solution of this division of the facade, which very often has been the undoing of an otherwise successful front.

The building at Nos. 463-467 Fifth avenue is a clever design in the style of Francis 1st; the window openings are large, and the floors have evidently the same levels as the dwellings adjoining on the north, and perhaps illustrates better than any other example how much can be accomplished in the remodeling for business



No. 382 FIFTH AVENUE, NEW YORK CITY.



Nos. 463-7 FIFTH AVENUE, NEW YORK CITY.



No. 259 FIFTH AVENUE, NEW YORK CITY.

purposes. The show windows are effective, and do not project beyond the building line, for it is difficult to maintain the appearance of good construction with projecting show windows. The ornamental detail is of terra cotta of cream color, with a Roman face brick of a slightly deeper tint.

It will be noticed that decorating firms have been among the first to realize and take advantage of the stimulating influence of refined buildings and good surroundings, and while this is particularly true of their business, it is also true of any that seeks to attract the appreciative buyer.

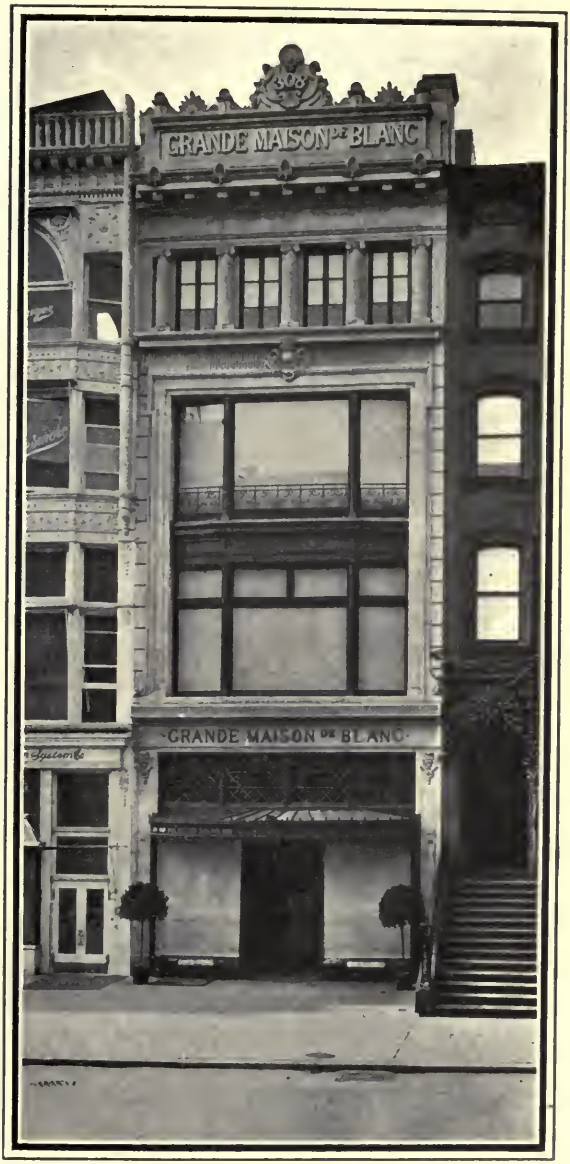
An entirely different front is that at No. 259 Fifth avenue, In this case the terra cotta serves the same purpose as a good frame does to a picture, and shows that it is not necessary to have iron columns on the lower stories to secure good window. It might also be well to note in passing, the advantages of terra cotta for ornament; for after the model is made, the design may be repeated many times, thereby greatly reducing the cost over a similar effect secured in carved stone; and, if the terra cotta be well designed and modeled, the effect is equal to that in stone, and it is also much more durable.

No. 308 Fifth avenue is a dignified composition on classical lines, and at the same time has large show windows, the Ionic columns on the top serving as divisions for the windows and carrying out the cornice treatment. The little carving used is very effectively placed and well designed.

Of course, these are cases where it is not necessary to remove the entire front to put in stores in the lower stories, and where this is done, it is well to endeavor to make in the lower portion some sort of harmony and likeness with the upper portion. The building at No. 589 Fifth avenue is a case in point, and shows what may be done with a comparatively narrow front; and while this building is flanked on both sides by dwellings, it does not obtrude itself, but attracts attention by its quiet dignity.

The building at No. 53 West 33d street is an alteration with a new front of stone, terra cotta and brick, all the old floor levels being maintained, and while at present a portion of the second and third floors are used for apartments, the whole may be converted into offices with little change.

The photographs on page 23 show several fronts directly opposite the Waldorf-Astoria and they, together with those shown on page 24 are on Fifth avenue between 38th and 39th streets may be taken as examples of the average business alterations. It will be noticed that where the original brownstone steps have not been retained the steps and railing are of iron and glass of the cheapest pattern; and in some cases the brownstone, in the



No. 308 FIFTH AVENUE, NEW YORK CITY.



No. 589 FIFTH AVENUE, NEW YORK CITY.



No. 53 WEST 33D STREET, NEW YORK CITY.
Alfred H. Taylor, Architect.



No. 5 WEST 31ST STREET, NEW YORK CITY.
Israels & Harder, Architects.



UNRECONSTRUCTED HOUSE-FRONTS.
Between 33d and 34th Streets, New York City.



UNRECONSTRUCTED HOUSE-FRONTS.
Fifth Avenue, between 38th and 39th Streets, New York City.

upper portion of the building, has been painted white. Many of these nondescripts have existed for more than ten years, and unfortunately their end is not yet.

The absence of all rule in the placing of signs helps in general look of confusion, the whole effect being rambling and disjointed, for a sign need not disfigure a front, if it is incorporated in the design, and the letters may be made to add a decorative value to the general composition.

The last illustration is a photograph of several shops on the river Dyle, at Malines, Belgium. Note the effective sky-line and grouping, the use of the tile in the roof, and the general air of balance, the simplicity and the value of plain surface and window opening, the buildings having contrast, with harmony.

It would not have been a difficult matter to have used some such "motif" in the remodeling that is now going on in 30th, 31st or 32d streets between Fifth and Sixth avenues, and the effect of such a group of business buildings would be ever widening in its influence. The evident attempt in this direction made in the alterations of the former dwellings on 33d street between Fifth and Sixth avenues, seems to be the best in result, thus far attained in the city,

yet the plentiful use of galvanized iron instead of brick, terra cotta or stone has destroyed the desired effect.

The city may be redeemed in a large measure if the right kind of effort is used in this important reconstruction which is now going on in many parts of the city. May not an effort in the direction of improving the streets with good business buildings, at least with fronts that will not be offensive, result in the refutal of the charge so often made that New York stands for pure commercialism?

Many architects have abandoned all hope of making the so-called skyscrapers anything but utilitarian, as their height destroys proportion, which is the underlying principle of architecture. Visitors may be attracted to the city by monstrosities such as the so-called "Flat Iron Building," but the buildings that are to add to the refinement of the metropolis are those whose height does not transgress well-established laws. Inasmuch as the number of monumental edifices, such as court houses, city halls, and even of public libraries, is somewhat limited, the buildings whose influence will be most felt, are those that are part of every day business life, and much good may be done by stimulating interest in their study and design.

Alfred H. Taylor.



ON THE RIVER DYLE—MALINES, BELGIUM.



DIRECTORY BOARD—CORN EXCHANGE BANK.
Executed by the Hecla Iron Works. Robertson & Potter, Architects.

MODERN USE OF BRONZE AND IRON DECORATIONS.

II.*

IT was in Italy that the decoration of houses with iron and bronze revived after the torpor that involved most of the arts during the middle ages, prior to the Crusades. Europe turned again to the Levant in order to obtain a fresh impulse. And from Italy the taste for decorative metal work spread to France and southern Germany, showing itself in the signboards, gateways and enclosures, the tombs erected in the cathedral and church, gradually affecting Holland and England. In the seventeenth century the Dutch and French brought it to North America, and in a less degree the Spanish to Central and South America. Iron fire-dogs, grilles, fire-backs, stoves of cast iron elaborately decorated with relief and inscription, candlesticks and rings to hold pitchpine torches are some of the objects the colonists forged or cast for themselves or imported from Europe, objects far removed in their primitive bareness from the highly artistic chains, lanterns, link-rings, door-knockers, railings, screens and fire-backs for hearths, with all sorts of decorative low reliefs on them, that were hammered or cast from iron in Italy, France and southern Germany. The reign of Louis XIV. saw France, more especially, excel in forged iron of great beauty for the interior and exterior of palaces and chateaux. The gateways at Hampden Court near London are examples of French work about 1690, while the tombs in Westminster Abbey show the skill of Italian, French and Flemish artists and artisans of earlier date. Although iron and the coal to melt iron are found close together in England that country has not excelled hitherto in artistic ironwork, all her energies going into commercial lines to exploit the demand of the world for machinery, steamships, locomotives, rails and the thousand and one branches into which the iron industry has split. Apostles of the arts and crafts have arisen in England from time to time and proclaimed the gospel of individuality, only to be crushed by the machine-made article. Indeed, a fashion for amateur blacksmithing once rapidly invaded England and crossed the Atlantic, leaving its trace in the manual training of our public schools and establishing in the school for arts and crafts classes in the easier forms of work in iron.

A powerful lever to the encouragement of decorative forms executed in iron, bronze and brass has been the growth of wealth in the United States. Banks and insurance companies have erected buildings in our chief cities which call for railings, grilles, screens and other objects which lend themselves to artistic treatment. The elevator shafts in skyscrapers have been enclosed in ornamental

*For Part I. of this article see June Number.



EARLY NEW YORK IRON RAILING.

No. 304 Mulberry Street, New York City.



HAMMERED GRILL AND ESCUTCHEON.

Residence of W. W. Allis.

Executed by the C. Colnik Manufacturing Co. A. C. Eschweiler, Architect.

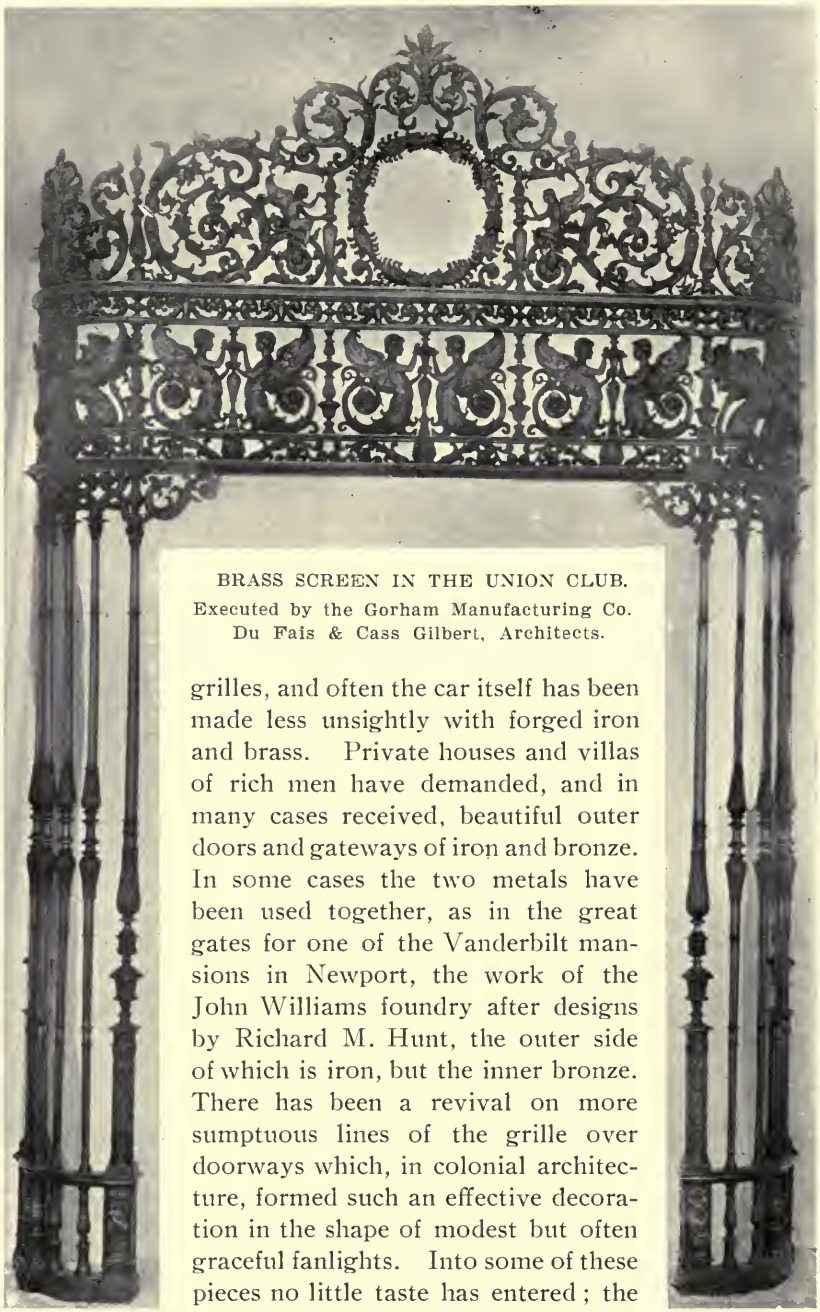


DOORWAY TO THE RESIDENCE OF CLAUS SPRECKELS, SAN FRANCISCO, CAL.
Executed by The Winslow Bros. Co.



BRONZE DOORS OF THE MARYLAND STATE BUILDING.
IN ANNAPOLIS, MD.

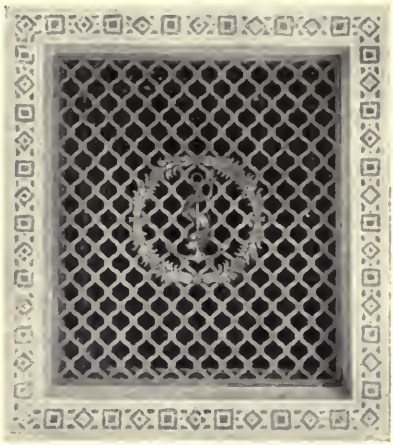
Executed by the W. S. Tyler Company. Baldwin & Pennington Architects.



BRASS SCREEN IN THE UNION CLUB.
Executed by the Gorham Manufacturing Co.
Du Fais & Cass Gilbert, Architects.

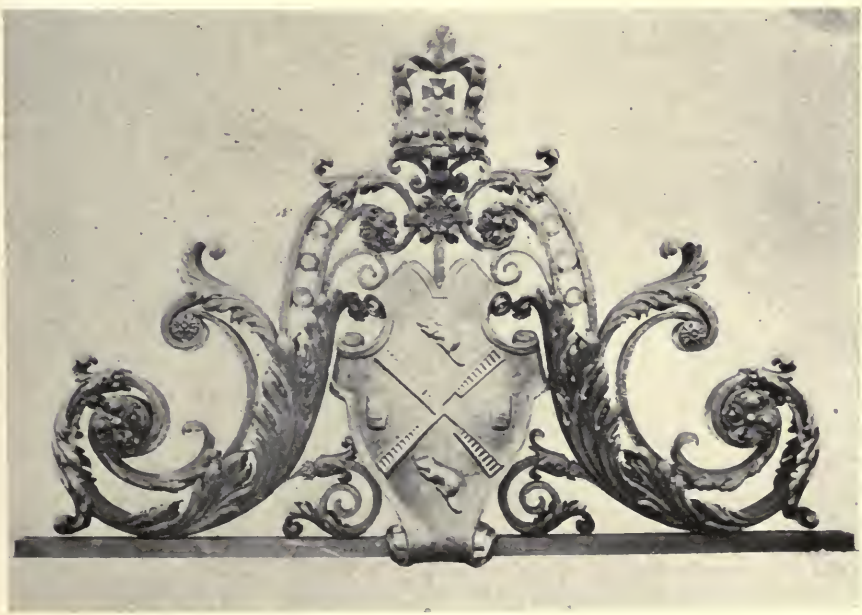
grilles, and often the car itself has been made less unsightly with forged iron and brass. Private houses and villas of rich men have demanded, and in many cases received, beautiful outer doors and gateways of iron and bronze. In some cases the two metals have been used together, as in the great gates for one of the Vanderbilt mansions in Newport, the work of the John Williams foundry after designs by Richard M. Hunt, the outer side of which is iron, but the inner bronze. There has been a revival on more sumptuous lines of the grille over doorways which, in colonial architecture, formed such an effective decoration in the shape of modest but often graceful fanlights. Into some of these pieces no little taste has entered; the designs are often original and charming; though it must be said that for the most part our architects are prone to save themselves the trouble of inventing new designs by taking over some motive ready to their hand in the treasure-trove

found in Italy and France among the old palazzi and chateaux. This is a trick of architects in all ages and almost all countries: it is defended on the plea that it is better to take something that is sure to be beautiful than run the risk of producing a novelty that will not bear the brunt of criticism in the long run. Plagiarism is the plague of all the arts, but in none is it practised with greater coolness and success than in architecture. It is evident that few clients exact originality in design. On the contrary, we see on every side an almost child-like eagerness to copy things in Europe, from a palace to a coal shovel. Only the exceptional person feels a pride in having about him things that are orignal and different from the objects that belong to other countries, other social conditions and other climes.

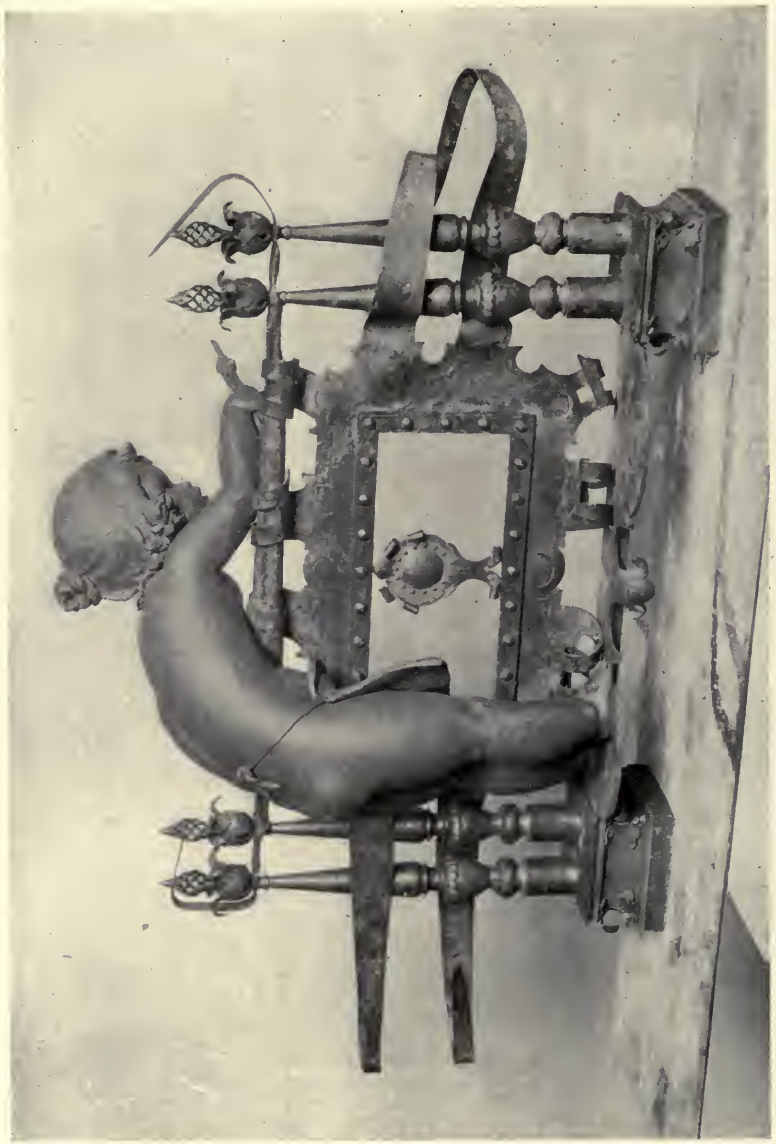


BRONZE GRILLE.
CHICAGO PUBLIC LIBRARY.
Executed by the
Chicago Ornamental Iron Works.
Shepley, Rutan & Coolidge, Architects.

In decorative ironwork one of the leading forges, that of John

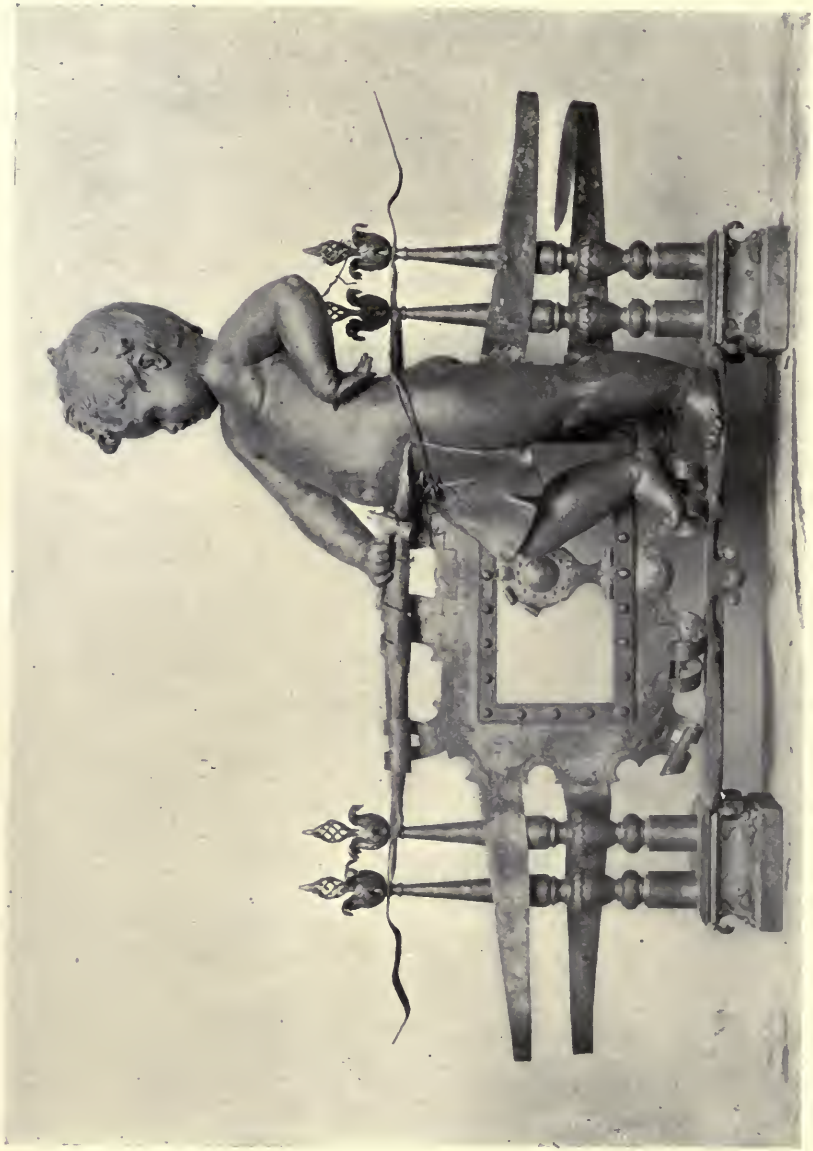


ARCH AT COLUMBIA UNIVERSITY.
Executed by John Williams. Designed by Lienau & Nash.



FIRE DOGS IN IRON AND BRONZE.

Executed by the Henry-Bonnard Co. Designed by Henry Linder.



FIRE DOGS IN IRON AND BRONZE.

Executed by The Henry-Bonnard Co. Designed by Henry Linder.



SHIP BELL FOR U. S. S. "CLEVELAND."

Executed by the Henry-Bonnard Co. Designed by Adolph Weinman.

Williams, of New York, has used designs by local artists for balconies, stair-ramps, balustrades, fanlights, brackets, screens and gates. In bronze the Henry-Bonnard Bronze Company has made exquisite doors for churches, casting them with many panels in relief and figures al most in the round at a single casting. It is from this foundry that the charm ing fire-dogs, by Mr. Henry Linder come, which are shown in the illus tration, having figures of children engaged in occupations appropriate to the hearth. Here we have again the combination of iron and bronze, iron for the rough work of supporting the logs and standing the heat of the fire in direct contact, bronze for the fine work of the sculptor.



ELECTRIC LAMP.
Executed by The Winslow Bros. Co.

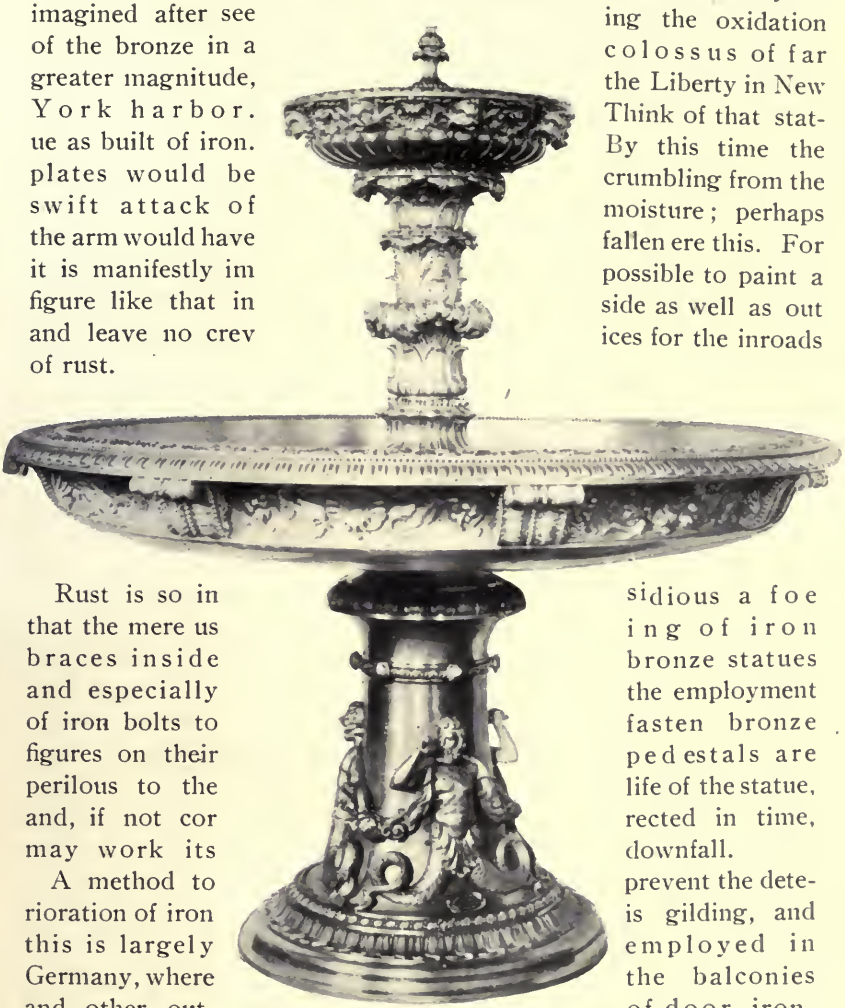
That iron is rarely the material taken for statuary is explained not only by its greater reaction in melting, but by its less resistance to the attacks of moisture. The far greater cheapness of iron has not persuaded artists to employ it for statues, although no fault can be found with the adaptability of the heavy metal to such purposes when the question is of filling a mold to its finest curves and corners. The rusting of iron is prevented but not cured by applications of paint. If exposed to the open air constant vigilance is necessary. And even then a scar on the paint surface may let in the rust which eats under the paint. That is one reason why so few of the old iron signboards survive. Let one of these somewhat flimsy affairs be neglected and oxidation destroys them in a short time. No cheap and effective safeguard has been discovered. An anchor chain under water does not escape. Cast iron stands better than forged iron and steel. But it is at least curious to note that the bottoms of iron steamships have to be protected from rust by a costly process of depositing on them a



STAIRCASE IN THE BOSTON MUSIC HALL.

Executed by the Hecla Iron Works. McKim, Mead & White, Architects.

layer of copper by the aid of electricity to prevent rust and the growth of barnacles. The iron colossus fifty feet high which Moretti has modeled to represent the iron trade of Alabama will have to be painted with great regularity, or it will be eaten up by rust from inside and out. How difficult that will be may be imagined after see ing the oxidation of the bronze in a colossus of far greater magnitude, the Liberty in New York harbor. Think of that statue as built of iron. By this time the plates would be crumbling from the swift attack of moisture; perhaps the arm would have fallen ere this. For it is manifestly im possible to paint a figure like that in side as well as out and leave no crev ices for the inroads of rust.



BRONZE DRINKING FOUNTAIN.
South Bend, Indiana
Executed by the
Chicago Ornamental Iron Works.

Rust is so in sidious a foe that the mere us ing of iron braces inside bronze statues and especially the employment of iron bolts to fasten bronze figures on their ped estals are perilous to the life of the statue, and, if not cor rected in time, may work its downfall.

A method to prevent the dete rioration of iron is gilding, and this is largely employed in Germany, where the balconies and other out-of-door iron-work on modern buildings are painted and gilt with a lavish hand. In France, also, and in Belgium, one sees gilding applied, but more sparingly than in Germany. All iron exposed to the weather in any but exceedingly dry climates has to be carefully protected from the air, and in moist climates like Great Britain and Ireland, Holland and northern Germany, in the tropics and on our own coasts iron things are not safe



LAMP IN WILLARD'S HOTEL.

Executed by Sterling Bronze Co. Washington, D. C.

from rust in the house unless constantly scoured. One of the hardest of metals, iron, is nevertheless one of the most perishable.

This does not prevent a liberal and constantly increasing use of iron for fences, doorways, gates to public and private parks, street lamps and lamps for the household, gas fixtures and those for electrical lighting as well as for architecture. Fire-escapes and the balcony are parts of the townscape which have not escaped the etcher and the water colorist who depicts the life of the street. Unfortunately, the fire-escape has not yet received artistic treatment from the architect, and the balcony is still too much neglected, though it affords a chance to relieve the almost hopeless reiteration



HAMMERED IRON WORK.
Executed by The W. F. Remppis Co.

of stories of the same height on the front of our overgrown apartment and office buildings. The art of disposing balconies over a façade, of making them appear natural outgrowths thoroughly a part of the brick or stone or terra cotta wall is still in its infancy. One might expect that the use of iron for the skeleton of the skyscraper would induce architects to link together skeleton and balcony and fire-escape as if the balcony and fire-escape were integral parts of the whole. Far from it.

We are still in the helpless stage of a new departure in architecture, when capitalist and designer cling frantically to precedent and try to make an iron building thinly fleshed



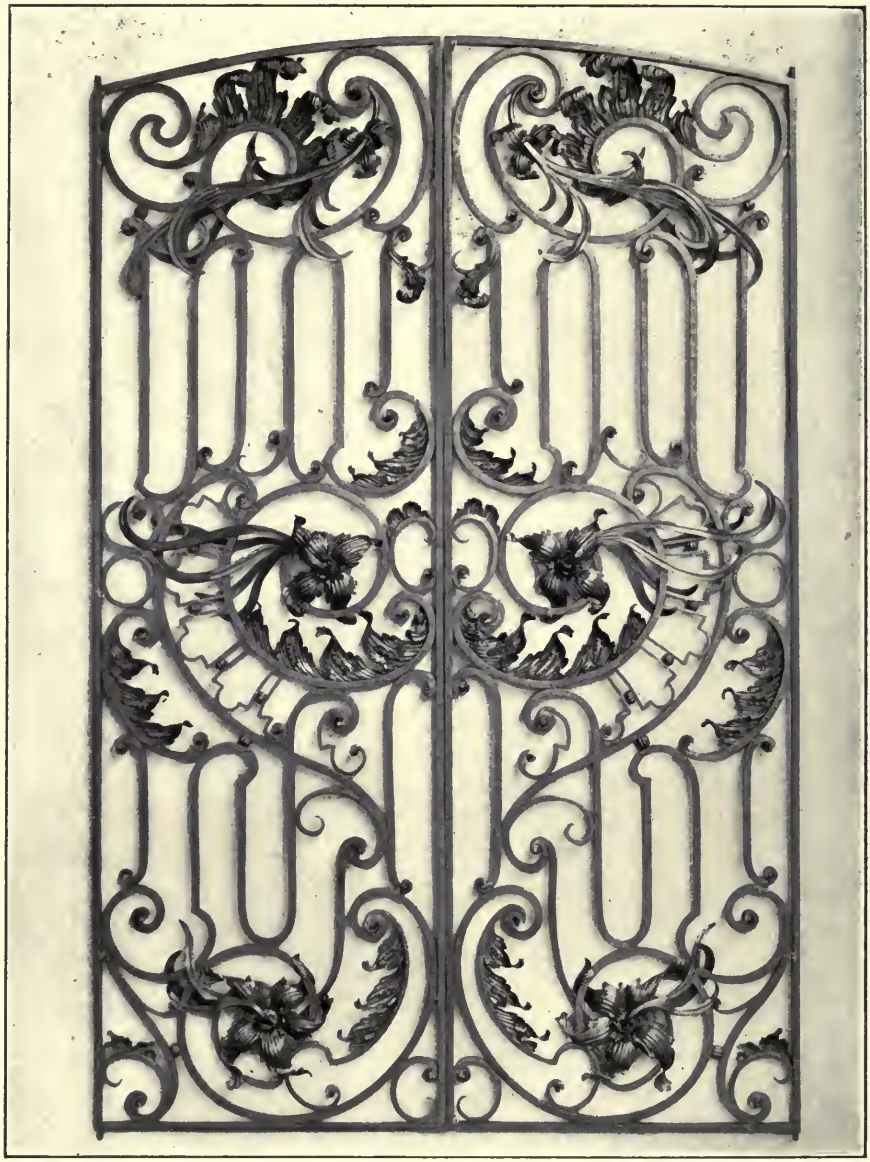
METALLIC WINDOW FRAME ON THE RESIDENCE OF SENATOR CLARK.

Executed by the Henry-Bonnard Co. Lord & Hewlett, Washington Hull and K. M. Murchison, Associated.



METALLIC WINDOW FRAME ON THE RESIDENCE OF SENATOR CLARK.

Executed by the Henry-Bonnard Co. Lord & Hewlett, Washington Hull and K. M. Murchison, Associated.



DOOR GRILLES.

Residence of Mrs. A. B. W. Clapp, Newport, R. I.

Executed by the Snead & Co. Iron Works.

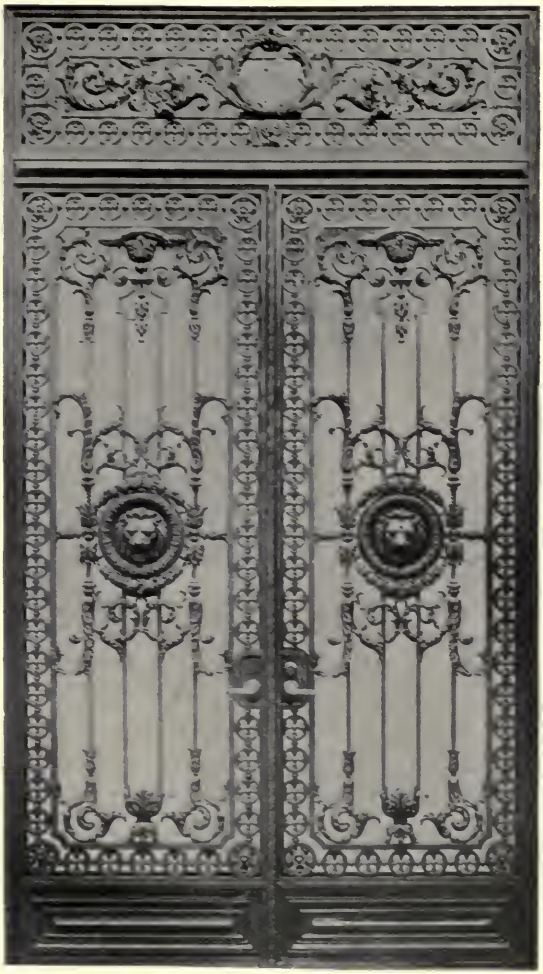
with stone or brick or terra cotta seem as much like a structure of brick or stone, throughout, as it is possible in the conditions that obtain. Later some architect may appear who is artist enough to feel the need of such treatment and strong enough with his clients to make them follow his advice. Then we may have iron architecture used in such a way as to enjoy the particular advantages offered by a metallic construction, advantages which are apparent as soon as we turn to smaller objects in which there is no temptation to imitate forms proper to other materials and then imagine their combination of lightness, vigor and strength applied to the problems of architecture. The tower, for example, which seems to be the natural form of the skyscraper, could be built beautiful in line, with cornices or eaves casting strong shadows and yet slender also, owing to the feeling of strength conveyed by iron. But to convey the idea the material should reveal itself. And since it is necessary to paint iron, the next step would be in the direction of color. Instead of offering their present monotony of color, our streets, lined as many of them are with tall façades concealing iron structures, might be gay with colors used as a safeguard against rust, but decorative too.



WROUGHT IRON STANDARD.
House of Geo. Gould,
Lakewood, N. J.
Executed by John Williams.
Bruce Price, Designer.

For small decorations of the wall and the study table bronze must always be preferred, notwithstanding its relative cost. There are such fine natural tones in bronze, the metal when polished is so rich and soft to the eye, that it must continue to attract the artist. In the small bronzes for the writing desk, the smoker's table, the office and study, there is a good deal of excellent work done by Linder, Fribert, Mrs. McNeill, Mrs. Bracken and Mrs. Hyatt, by Brenner, Roth, Borglum, Barr and others too many for enumeration.

Chas. de Kay.



WROUGHT IRON DOORS.

Residence of Mr. Archer M. Huntington, No. 1083 Fifth Avenue, New York City.
Executed by the Wm. H. Jackson Co.

WHAT IS CIVIC ART?

THE question as to what is civic art might seem to be as unnecessary as the question: What is municipal reform? Civic art is obviously the name given to the very general aspiration and movement which aims at the improvement of our cities in convenience and appearance; and an answer to any question about its nature would apparently consist of a description of the movement, its purposes, methods, achievements and principles. This is the way in which the question has been answered for the most part by Mr. Charles Mulford Robinson, in his book on "Modern Civic Art." After a couple of introductory chapters, of which more presently, Mr. Robinson enters into an elaborate explanation and illustration of the general rules which should determine the improvement of cities. He begins by establishing their focal points, such as the land and water approaches, and the administrative centre, goes on to discuss the plan and architecture of the business district, and the proper manner of furnishing its streets, and concludes this division of the book by a similar discussion of the proper disposition and embellishment of a residential neighborhood. Then he winds up with a section dealing with the city at large, with parks, parkways and open spaces generally. On none of these subjects does Mr. Robinson leave very much to say. His book will be the manual of municipal improvement for many years to come, and will render any other book of the kind unnecessary. He has sketched for us the ideal city of the civic art reformers—the city in which the utilitarian lion lies down with the artistic lamb, and in which all things are as they should be.

Mr. Robinson waxes very enthusiastic over his vision. "There is," he says, "the promise in the sky of a new day. The darkness rolls away, and the buildings that had been shadows stand forth distinctly in the gray air. The tall façades glow as the sun rises: their windows shine as topaz; their pennants of steam, tugging flutteringly from high chimneys, are changed to silvery plumes. Whatever was dingy, coarse and ugly is either transformed or hidden in shadow. The streets, bathed in the fresh morning light, fairly sparkle, their pavements from the upper windows appearing smooth and clean. . . . As when the heavens rolled away and St. John beheld the new Jerusalem, so a vision of a new London, a new Washington, Chicago or New York, breaks with the morning sunshine upon the degradation, discomfort and baseness of modern city life. There are born a new dream and a new hope."

For my own part, I cannot share Mr. Robinson's enthusiasm over his vision. While I believe that the movement towards better-planned and better-looking modern cities is as almost necessary and as praiseworthy as the movement towards political reform, I doubt very much the practical value or the theoretic defensibility of looking forward to a civic art millennium or definitely outlining such a consummation. Mr. Robinson's new Jerusalem, like the heaven of mythological Christianity is merely a bit of poetry, but unlike the heaven of mythological Christianity, it is a bit of poetry out of place. It is seductive and impressive only as it is vague and remote. In proportion as it is made definite, it becomes tame, characterless and uninteresting. The ideal city, which is envisaged by putting together the elements of Mr. Robinson's complete vision, in which the streets were all correctly laid out and furnished, the architecture sufficiently subdued and regulated, and the monuments most immaculately grouped and situated, and in which every suggestion of baseness and discomfort is removed—such a city would be less amusing, less suggestive, and in a real sense less habitable than the degraded but living cities of to-day. It is true that the well-planned, well-regulated and well-furnished ideal city is "cracked up" to be very beautiful; but its beauty is entirely a matter of words. Just as the irregularities and discomforts and degradation of London make a more interesting city than the monotonous machine-made regularity of the newer Paris, so no amount of elaborate and correct planning of streets, monuments, furniture and parks will of themselves make a beautiful, habitable and interesting city. The ugly actual cities of to-day make a livelier appeal to the imagination than does an ideal city, which in sacrificing its ugliness on the altar of civic art, sacrifices also its proper character and inherent vitality.

It will be answered immediately that this criticism is founded on a false conception of civic art and of the ideal city. The new Jerusalem, of which Mr. Robinson writes, is, it will be said, a flexible ideal, which can be adapted freely to the local peculiarities of any particular city, and which is described in general terms merely as a matter of literary convenience. Well! No doubt the ideal city is at bottom merely a matter of literary convenience; but the writer holds, nevertheless, that the criticism is based on a more wholesome and truer conception of civic art than is the one contained in Mr. Robinson's book and adopted by the majority of civic art reformers. It is the assumption of these gentlemen that the making of habitable, interesting and beautiful cities is fundamentally a matter of highly conscious and well-informed design; that provided sufficient means and authority were placed at their disposal, contemporary American architects and

sculptors are quite capable of planning and designing consummate New Yorks and Chicagos—cities, which would not only be devoid of offense and highly convenient, but almost as much a source of permanent æsthetic satisfaction as the great architectural achievements of the past. The writer strongly dissents from this assumption. American art is not sufficiently national and mature to undertake colossal and grandiose schemes. Public opinion is unprepared for such millennial flights of civic art. It is all very well to lay out a comprehensive scheme of development for a city like Washington, which owes its existence to the national government and its individuality to a pre-natal plan. It is all very well to carry out particular improvements in particular cases, for which the necessity is immediate and the times are ripe—such, for instance, as the group of public buildings to be erected in Cleveland, or the proposed rearrangement of the buildings in the City Hall Park of New York. But, at the present stage of American municipal growth and æsthetic capability, we should not try to plan too much and too far. However much we may borrow from Paris (and I do not question the desirability of such borrowing) we do not want a Frenchified New York. We want an American New York at any cost—even at the cost of good looks.

Whether an American New York can be obtained only at the price of good looks remains to be seen; but at least we should not fall into the naïve error of seeking to make either a consummately beautiful or a consummately American city merely by the magic of intelligent effort. A great city cannot be forced to bloom beautiful. Its comeliness must wait on the concurrence of a number of rare and happy conditions. The art, which is capable of making a consummately beautiful city must possess more than intelligence, good taste, and complete information. It must be a mature art, guided by authentic conventions, fertile in great designers, possessed for a passion for propriety and beauty of form, and confirmed by genuine popular appreciation, in every respect the master of its resources. We have plenty of clever and well-informed architects, painters and sculptors in this country and some few great ones, but it must be recognized that American art is mature only in spots, and that it should be in no hurry about attempting to rear a series of great municipal and national monuments. American art is not as yet guided by authentic conventions. Its methods are experimental. The subjects it uses are abstract and arbitrary. The popular interest it arouses is both lukewarm and restricted. Above all it has not yet succeeded in giving any large propriety to the forms it uses. That which is artistic is very artistic and is loudly declared to be artistic by every aspect of its appearance. That which is useful is very useful, and its grim utility is equally

a matter of loud proclamation. Only very few attempts have been made to make the architectural forms really expressive of the honest engineering and utilitarian fact; and until this gulf between the artistic and the useful has been bridged American architecture and the allied arts cannot become national and authentic. The vision of a local pseudo-classic Beaux-Artist New Jerusalem, which is the only kind of an ideal city the civic art reformer ever imagines, seems to the writer a very insipid ideal. For me the skyscraper and the furnace-stack.

The ridiculous extreme to which the idea of the consummate city may be carried was recently illustrated by Mr. Brook Adams. A few years ago he seriously argued in a public address that New York should spend a couple of hundred million dollars on beauty immediately, because history proved that beauty was a profitable investment—as if a great city could make itself permanently comely and effective by much the same methods and arts that an actress uses when she goes upon the stage, and for much the same purpose. Good looks, obtained in this way, if obtained at all, would be no more than a make-up. Should some millionaire be enthusiastic enough to give a few hundred million dollars to a committee of New Yorkers with instructions to spend it in buying a pretty mask for the city, the money would be more wisely spent in case the interest rather than the principal were applied to the task. It is far better, at present, to keep our city improvement plans confined by a comparatively modest ambition. If a city needs new streets and buildings let them be built, of course; but contemporary work should be restricted to contemporary needs, and no attempt should be made to build very much for a future that may be much better capable of building for itself.

In making these criticisms on Mr. Robinson's book, I have no wish to disparage the movement in favor of what is called civic art as such. Confined to its proper limits that movement is wholesome, necessary and promising; but I cannot help thinking that the civic art reformers in the appearance they make to the public over-emphasize the artistic and under-emphasize the utilitarian value of their laborers. Civic art is, properly understood, more of a science than an art, and its purposes and methods are better adapted to scientific and social rather than to artistic results. By all means let American cities be better planned wherever possible; let their streets be wider and more conveniently laid out, let the furniture in those streets be made from good routine designs; let the buildings that line them be regulated in their appearance, so that all of them are subordinated to a general effect; and let the harsh, straight lines of these streets and houses be relieved by trees and parks. These things are well

enough; but do not let us confuse them with such a high thing as beauty. They belong to a middle realm of scientific æsthetics, which is assuredly of the utmost importance for the health, convenience and looks of a great city, but which are the better managed and the better understood, the closer they are kept to the utilitarian and engineering level.

Mr. Robinson recognizes the importance of what may be called civic engineering; but he is not content to keep the business at that level. "Engineering," he says, "upon which the æsthetic aspect of cities is so largely dependent, differs from pure art in that it need not be the child of inspiration. It is an exact science, and as such wealth can buy it, bringing to the city the engineer who can make the municipality splendidly correct, if among its own citizens there be no other who has that power. The science of city-building does not wholly depend upon high impulse or inspiration. For its plainer yet essential victories the intellect is sufficient. And yet over and above this requirement which we can hope to meet so easily, there are the high motives, that must surely give birth to inspiration." Surely it would be very much better for the present to cleave to the modest ideal of making our cities wherever possible "splendidly correct." In New York, for instance, the reformers who want to make a city beautiful at the expense of a few hundred million dollars, would accomplish something more and better, in case they merely tried to revise the street plan along practical lines, and so rallied to their support all those interests in the city who will be benefited by a freer movement of traffic, both on the sidewalks and in the streets. The improvement of the mechanism of city life by means of careful and comprehensive planning, while it should not be pushed too far, is much the most fruitful soil for the application of scientific methods and civic enthusiasm, and while it would be absurd to deny that such methods can be applied within limits to great works of public art; still they should be applied in moderation. The beauty of a city life, if it is capable of acquiring any, must issue from more inevitable and less conscious sources.

This brings us back to the question with which I started: "What is civic art?" Mr. Robinson's idea of the essential nature of civic art is contained in his second chapter, which, however, is entitled not "What is Civic Art?" but "What Civic Art Is." The doctrine reads as follows: "It is municipal art, first of all. If men seek it, they seek it not for Art's sake but for the city's; they are first citizens and then in their own artists, and artists in this way only because they are citizens. We do not find men and women banding together to create a public sentiment and fund in order that some

sculptor may do a notable bit of work to the glorifying of his field of art. But they so bind themselves together . . . for the glorifying of civic art—not just because it is art, but because it is civic. They are not asking the town to help art, but art to help the town; the artists, not to glorify their art but by their art to glorify the city." It is just this conception of civic art, which we believe to be erroneous and sterile. Good art is not the product of good intentions; high motives do not, as Mr. Robinson says, lead to inspiration. The motives that do issue in a great work of public sculpture are partly the "motives" peculiar to all artistic creation, and partly the peculiar vision proper to the particular art of sculpture. It is an intellectual and not a moral passion—a passion for consummate form and not for a consummate city. Does Mr. Robinson suppose that St. Gaudens had any particular wish to glorify "New York when he spent years of anxious and exhausting work in making his Sherman." He probably never thought about New York, except to regret bitterly the fact that its city officials refused to let him place his statue as he believed it should be placed. If he was "glorifying" anything, he was "glorifying" his subject and his own power of daring and effective sculptural composition. Yet if the Sherman is not a piece of civic art, what would you call it? In truth civic art differs from other kinds of art only in the fact that its opportunities are bigger, and require on the part of the artist a larger vision, a completer training, a higher power of cooperation and a more authentic tradition. There is no reason why an artist who is an artist, should not love his city and want to "glorify" it, but if so, that is only a happy accident. If he cannot "glorify" his art, he cannot "glorify" his city, no matter how much he may love it.

Herbert Croly.



Ornamental Iron Work from Store Front.
THE SCHLESINGER & MAYER BUILDING.
State Street, Chicago. Louis H. Sullivan, Architect.

THE SCHLESINGER & MAYER BUILDING.

An Attempt to Give Functional Expression to the Architecture of a Department Store.

THE tide of commerce ebbs and flows along State Street, in Chicago, and as the observer moves with the passing throng, his attention will be drawn toward the corner of Madison Street, and retained there by a building recently completed. It is one of many devoted to the retailing of goods, but on an extensive scale and including a large percentage of women among its patrons. This function is unmistakably expressed in the design. The city in which the building is located has the peculiarity of concentrating its commercial district in a comparatively limited area, within which there has been erected a large number of buildings of like purpose and character. The one in question is not of colossal type. Its façade is not based on "features," but its individuality is distinct. Its exterior frankly betokens its structural basis and rises in no uncertain fashion from sidewalk to cornice. It is a logical solution of the commercial building, such as a department store, the latest and best achievement produced in this country.

This result has taken some time to accomplish and is the culmination of a long series of previous efforts, all working toward the better expression of what is regarded as our most unsatisfactory architectural problem. It is the outcome of careful preparation, skillful study and its application, maturity of mind and full sympathy between the maker of ideas and the makers of materials.

The design is thoroughly modern. It shows fully the structural function of the steel frame with the enclosing protection of terra



THE SCHLESINGER & MAYER BUILDING.

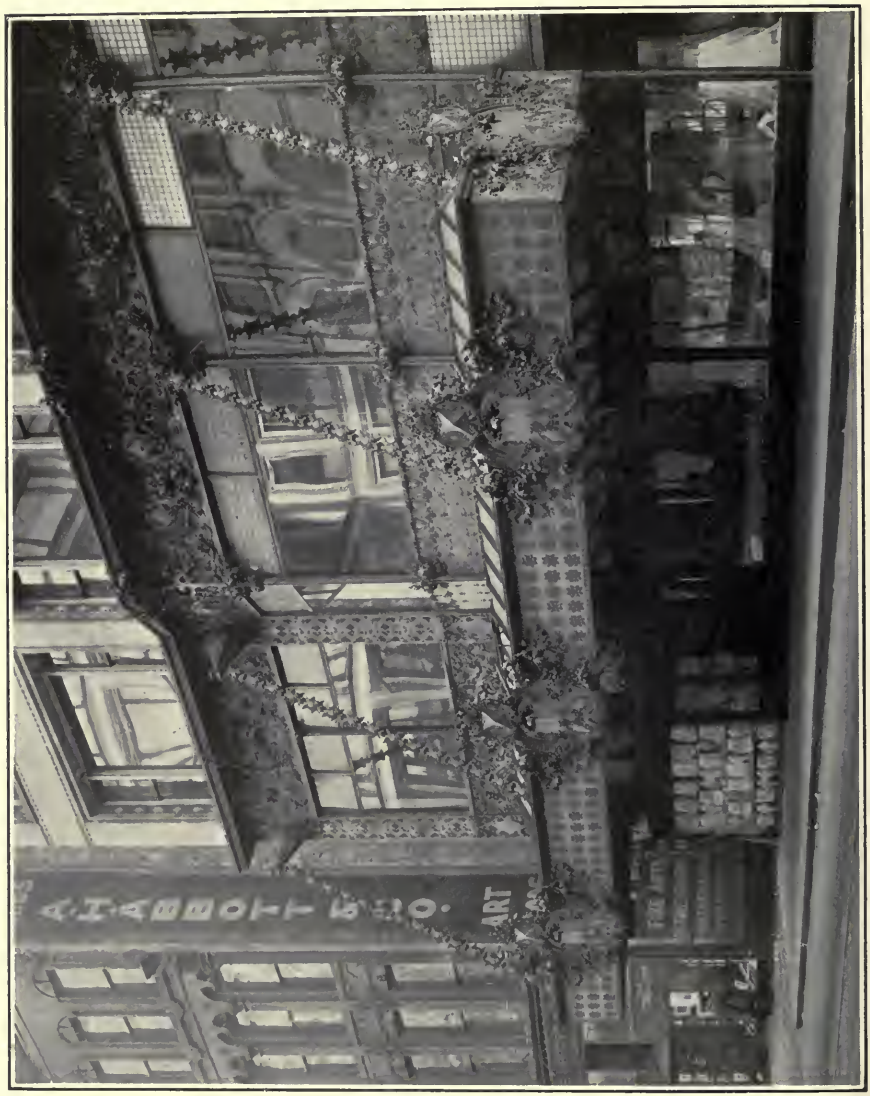
State Street, Chicago. Louis H. Sullivan, Architect.



Corner Entrance.

THE SCHLESINGER & MAYER BUILDING.

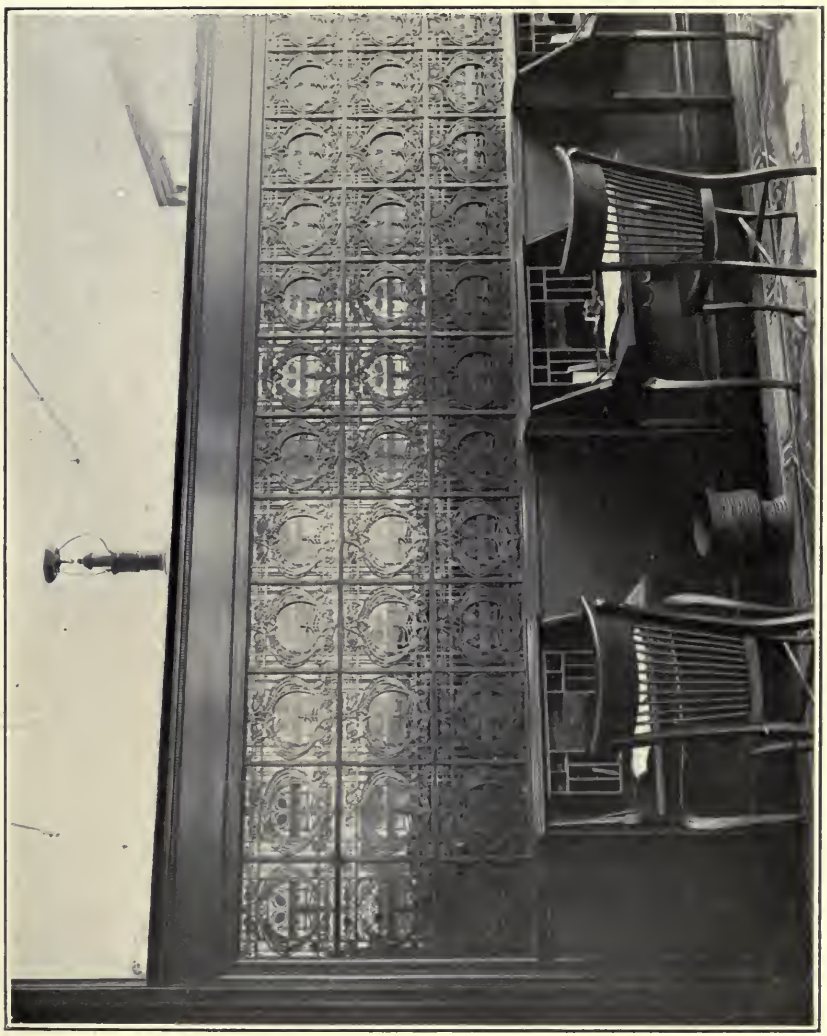
State Street, Chicago. Louis H. Sullivan, Architect.



The Marquise.

THE SCHLESINGER & MAYER BUILDING. Louis H. Sullivan, Architect.

State Street, Chicago.



Sawed Wood Screen.

THE SCHLESINGER & MAYER BUILDING.

State Street, Chicago. Louis H. Sullivan, Architect.



A General View of the Ornamental Iron Work of the Lower Stories.
THE SCHLESINGER & MAYER BUILDING.
State Street, Chicago. Louis H. Sullivan, Architect.

cotta, treated with full knowledge of its plasticity in its natural state and hardness and durability after treatment in the kiln. The lower portion on the street is equally straightforward in its qualities of "plate glass" architecture. Here are the largest openings possible for display windows and their attractions to feminine eyes are framed by a surrounding of elaborate decoration in cast metal. These forms immediately attract attention. They are full of vitality, of movement, grace and line. They twine and intertwine, divide and subdivide in marvellous fashion, yet they are ever traceable to their parent source and strongly organic.

In the Prudential Building, in Buffalo, which emanated from the same head, the essential element is masculinity. It is an American office building dominated by men and devoted to the transaction of their business in all its multitudinous forms—the elements of activity, ambition and directness of purpose, are all shown thereby in the architectural forms.

The Schlesinger & Mayer Building is a differentiation of the commercial problem and has been treated entirely on its own merits, both in the general design and in the detail. This is frankly a department store—an establishment where goods of many kinds may be retailed to many people and so displayed over large floor areas, that ease of examination and accessibility to products may be speedily achieved. Hence, throughout its typical floors, the window openings are of maximum size and form a distinct basis of the exterior design. The detail of the decorative treatment around these openings enhances the outlook, and gives additional values to the exterior effect. The building terminates in a cornice based on the projecting roof beams and rationally functional.

There were certain modifications in the structure during its erection based on changes incidental to the growth of the business and project. The first of the sections built was on the less important street and eight stories high. With the erection of the corner section four stories were added in height. This increase showed the integrity of the basic design. The building was simply carried up the additional stories desired, to twelve, and the terminal foliations of the stem-like columns and the cornice detail correspondingly enlarged for their additional distance from normal viewing.

The treatment of the ornamental detail is essentially appealing in its quality to femininity. It is sensitive to a high degree, delicately pleasing to the sympathetic eye and with fine feeling and movement permeating its most incidental ramification.

The entire scheme is one organic whole and is carried out in full harmony and balance. Values are carefully preserved and a consistent motive runs through the ornament. The surfaces, either

treated in relief or in one plane indicate careful study with fine appreciation of the natural qualities thereof.

In addition to the cast and moulded ornamental detail of the exterior, this same treatment is preserved to an exceptional degree in the interior work. All of the woodwork has undergone the most careful inspection and valuation before selection in the paneling and careful matching of the wood. There are also effects obtained through the product of modern machines and appliances intelligently used by logical designing. This is especially achieved in a screen of sawed wood, enclosing a corner of the third floor and making thereof a writing and retiring room. The upper portion of the wainscoting is made with panels of five thicknesses of sawed mahogany. The outer two thicknesses or planes are curved lines, the next two are straight lines, the middle plane a combination of both. These all placed in sequence produce a fine orchestration of ornamental form with a development of light and shade greatly enhancing the values of the successive surfaces. It is, without doubt, the most unique and beautifully elaborate woodwork made in this country, using modern methods in the manufacture.

So, throughout the entire building, inside and out, is carried the integral scheme of functional form and its appropriate expression in terms of material. All this is based on a comprehensive theory of architecture and a carefully developed system of expression.

Lyndon P. Smith.



Detail of the Ornamental Iron Work.
THE SCHLESINGER & MAYER BUILDING.
State Street, Chicago. Louis H. Sullivan, Architect.

Another View—What Mr. Louis Sullivan Stands For.

I doubt very much whether Mr. Sullivan's work has yet received the estimation and recognition which unquestionably it merits. In the wilderness of our architectural practice Mr. Sullivan occupies to-day something of the usually isolated position of the prophet, the forerunner, the intensely personal force. It is strange



Terra Cotta Capital.

THE SCHLESINGER & MAYER BUILDING.

State Street, Chicago. Louis H. Sullivan, Architect.

that this should be so in a land where strong individuality is rather prized and applauded than neglected and qualified; and in a profession, too, that is so frequently spurred by a general call for "originality"—a profession, moreover, that is at the same time brought almost daily face to face with new problems in design that really demand by the obvious logic of structure and function, the development of new architectural for-



Detail of the Wood-Work.

THE SCHLESINGER & MAYER BUILDING.

State Street, Chicago. Louis H. Sullivan, Architect



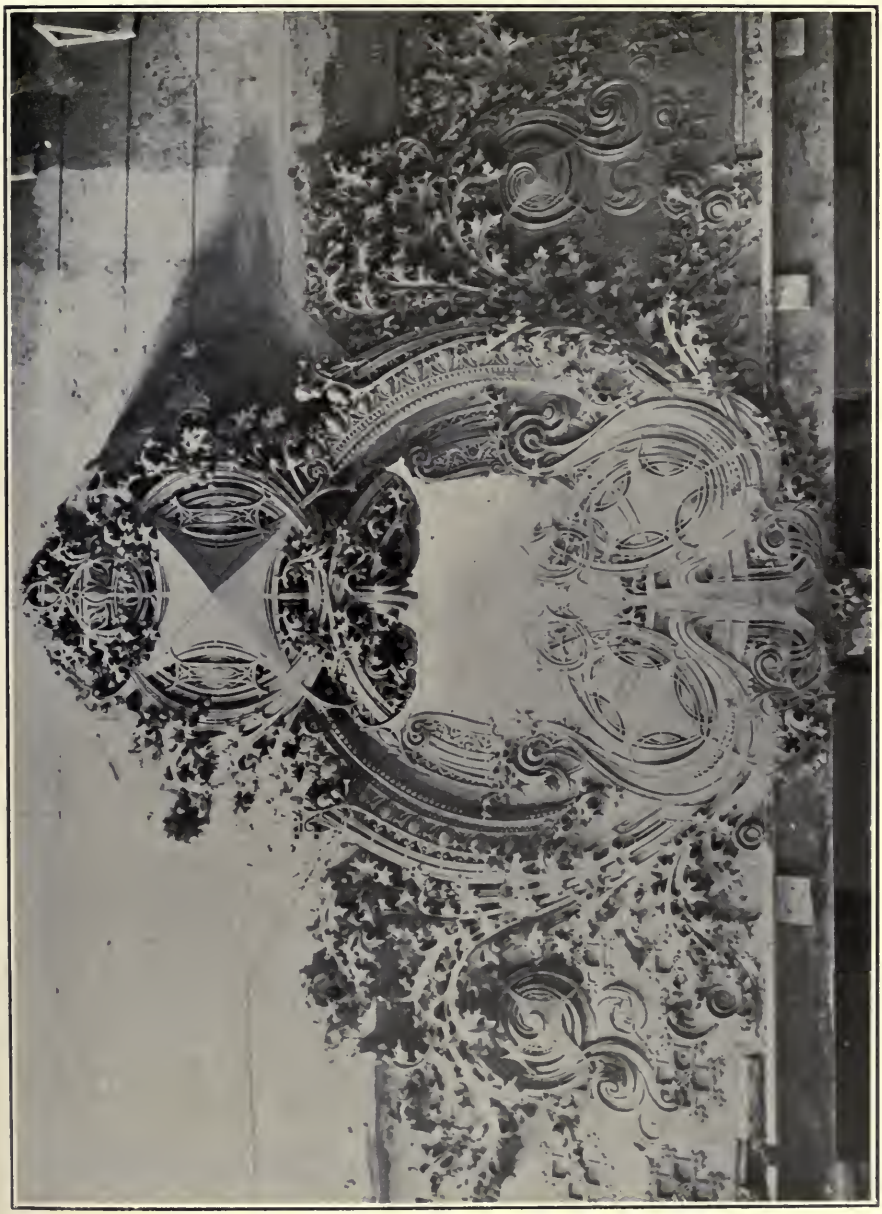
The Restaurant.

THE SCHLESINGER & MAYER BUILDING.

State Street, Chicago. Louis H. Sullivan, Architect.



Detail of the Iron Work.
THE SCHLESINGER & MAYER BUILDING. Louis H. Sullivan, Architect.
State Street, Chicago.



Detail of the Iron Work.

THE SCHLESINGER & MAYER BUILDING. Louis H. Sullivan, Architect.

State Street, Chicago.

mulæ. For, let it be well understood, Mr. Sullivan is really our only Modernist. He is, moreover, strictly of our soil. He has his precedents, no doubt, but his mature work, we might indeed say all but a small residuum of all his work, is not to be dated from elsewhere either as to time or place. Mr. Sullivan himself is the centre of it. He is his own inspiration, and in this sense may be saluted as the first American architect. To say that he has invented a style would, of course, be to say too much, but he has certainly evolved and elaborated a highly artistic form of superficial decorative expression in logical connection with the American steel skeleton building. Richardson is our historical example of American originality in architecture, but Richardson's work, permeated as it is with the author's mighty personality, is not free, is indeed far from free from an archæological basis. In the presence of Richardson's buildings, we never lose the sense that we are confronted by a colossal importation, buildings lifted, as it were, by giant hands out of some mediæval locality, of which we fancy we can find the historical reminiscence somewhere in Romanesque France. On the other hand, there is not a vestige of the past in Sullivan's work. It is as modern as the calendar itself. The artistic ingenuity, nay, the artistic boldness of the attempt is admirable. Here, is L'Art Nouveau indigenous to the United States, nurtured upon American problems, and yet but scantly recognized or considered by a profession that busies itself with the exotic importation of the same principles from an alien source.

The Schlesinger & Mayer Building is the latest result of Mr. Sullivan's personal initiative. We understand from sources not authoritative, but still reliable, that Mr. Sullivan worked for three years on the problem entrusted to him. If this be true it is the only antique element in a design which is almost startlingly bald in its logic and blanched in its complete disregard for any of the traditional architectural tones. The artist has stuck to his own palette, developed from himself; trusted entirely to his own inspiration.

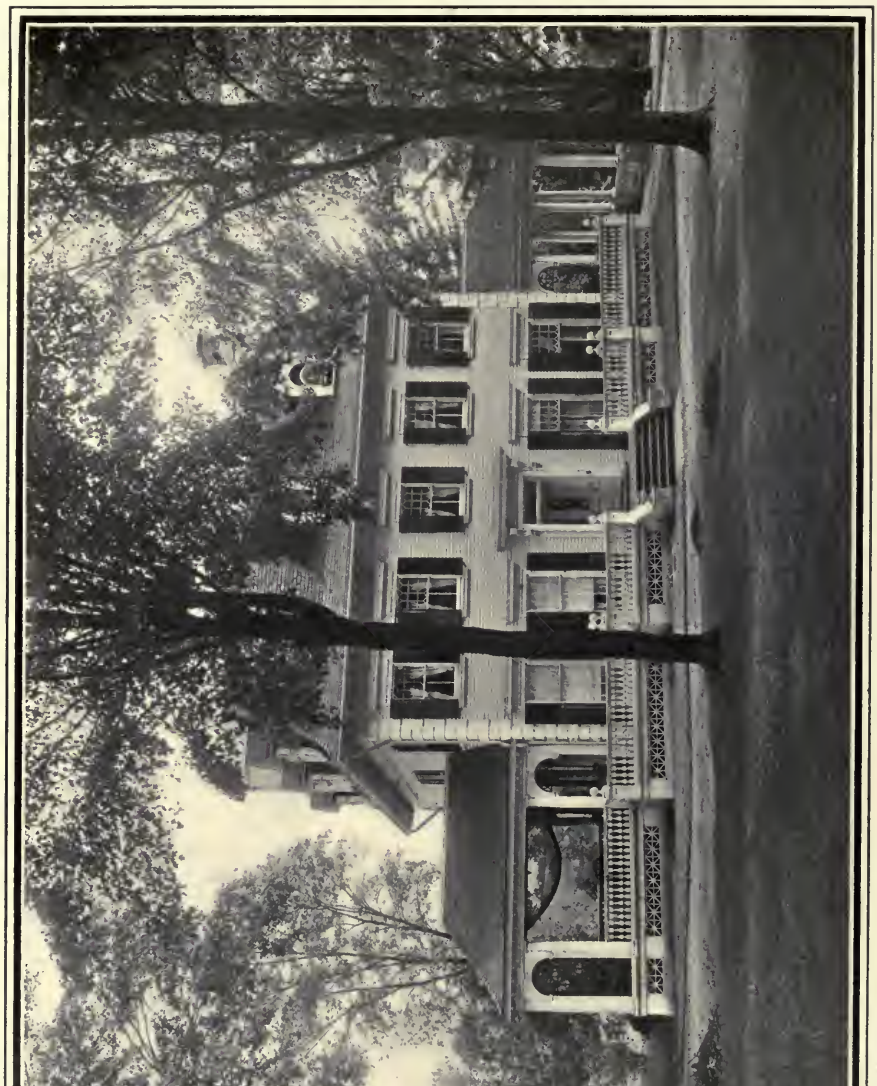
And the result?

Mr. Smith, whose remarks precede these of mine, speaks candidly as an intelligent admirer, as a convinced enthusiast. One's first feelings perhaps is, not to disturb the mellifluous *allegro*; not even to question the suggested metaphysics by inquiring with too rude an analysis as to what are the essential components of the expression of femininity in architecture. We may have philosophic doubts as to this part of the Sullivan doctrine—doubts which, if occasion required, one might even screw up one's courage to state with extreme positiveness; but about Mr. Sullivan's latest architectural achievement itself, one hesitates to say a word off hand or hastily. One's initial impressions of the building have a

treacherous elusiveness. At first glance some judges no doubt will be tempted to exclaim: "This will never do! Facility and ingenuity have here out-run themselves—jumped, as it were, on the other side. There is always danger that the mind by excess will parody its own cleverness, and in the Schlesinger & Mayer Building, has not Sullivan himself given us the Sullivanesque?"

There is, I believe, an element in even a rapidly enunciated opinion of this sort which will persist and be a component of a final and mature judgment, but how far will this superficial impression be qualified and in what direction? The immense ability of the ornamental design that like an efflorescence blooms on the Schlesinger & Mayer Building, is not for a moment to be questioned. Its successes are based upon a wonderful inventiveness and ability to handle in a harmonious manner involved surface decoration. Is there anything at once so original and so capable elsewhere to be found in American work? Where are we even to match its kind abroad? And if much of the decorative design is open to the charge of being vague and inorganic, no little of it possesses a really exquisite definiteness and suitability. The design, moreover, is all very true to its material. One is almost tempted to the exaggeration of saying it is too true, and in places is rather metalesque than metallic. There is danger in it all no doubt. The singer, we feel, is too much in the lyric strain. The sense of the thing tends to the incoherent. Nevertheless, there is an enthusiasm of inventiveness in the work, a personal reality, a sparkling artistic exuberance which confounds us when we compare it with the dull copybook ornamentation, the repetitions a thousand times repeated that pass in the ordinary category of architectural work for "modern decoration." Under these circumstances it is perhaps the wiser part of judgment to quietly permit this latest production of Mr. Sullivan's to speak to us itself for a time, feeling sure that in the final appraisement we shall find not only that the work possesses great value and inspiration, but also a lesson—in which Mr. Sullivan himself will need to share.

H. W. Desmond.



RESIDENCE OF MR. HORACE L. HOTCHKISS.

Rye, New York. W. H. Beers, Architect.

THE ARCHITECT'S PORTFOLIO

OF

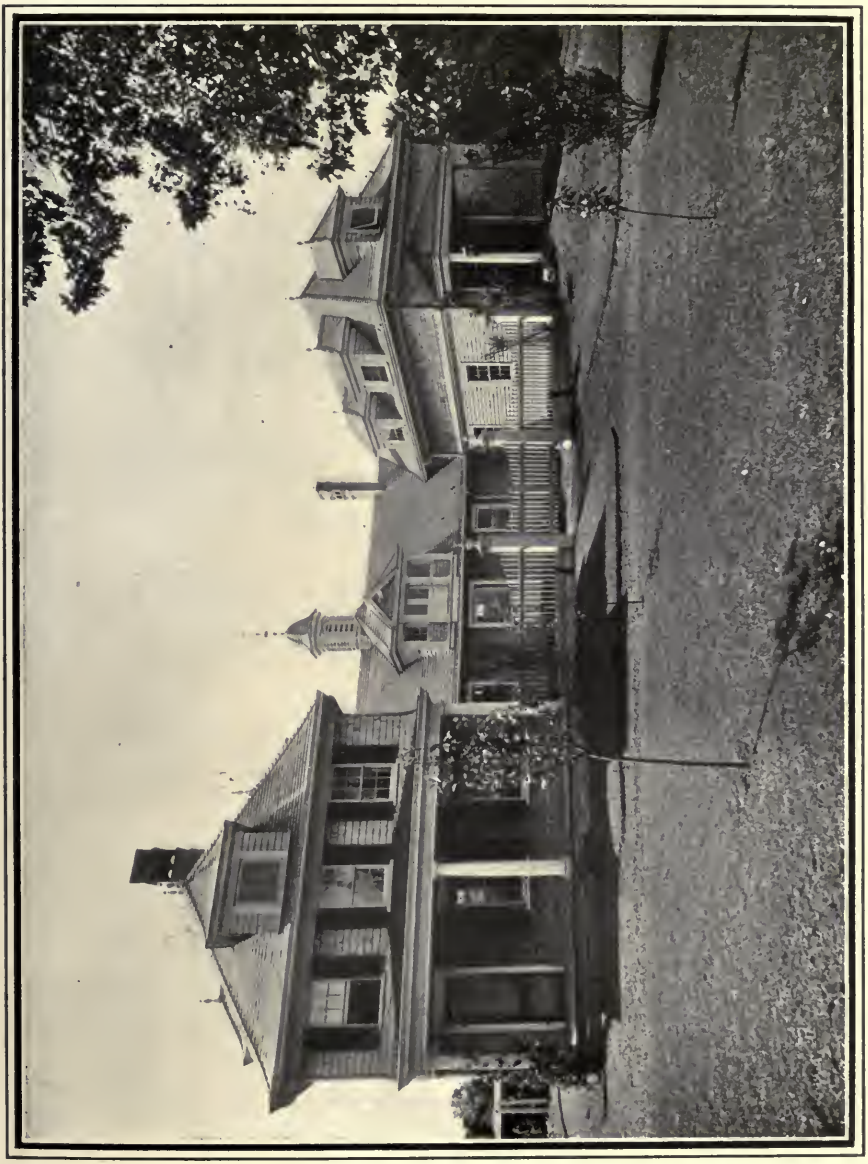
RECENT AMERICAN ARCHITECTURE.

A CHRONICLE IN BLACK & WHITE

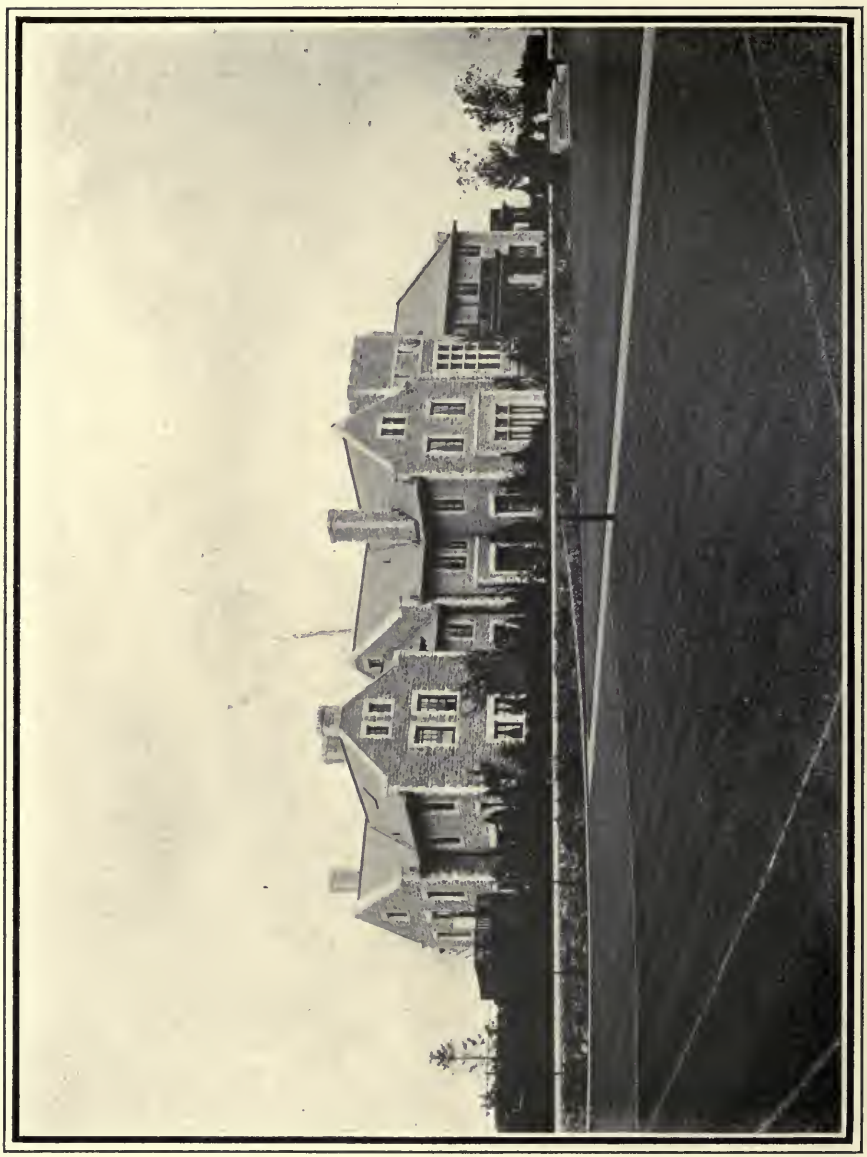


RESIDENCE OF MR. HORACE L. HOTCHKISS. W. H. Beers, Architect.

Rye, New York.



Rye, New York. STABLE OF MR. HORACE L. HOTCHKISS. W. H. Beers, Architect.



HOUSE AT BERNARDSVILLE, N. J.
Renwick, Aspinwall & Owens, Architects.



HALL IN THE RESIDENCE OF CHAS. D. SIMONS, JR.
Renwick, Aspinwall & Owens, Architects.
Dongan Hills, Staten Island.



LIVING-ROOM IN A HOUSE AT BERNARDSVILLE, N. J.
Renwick, Aspinwall & Owens, Architects.



DINING-ROOM OF THE BILLINGS HOUSE.
Warrington G. Lawrence, Architect.
Elteron, N. J.



HOUSE AT BERNARDSVILLE, N. J.
Renwick, Aspinwall & Owens, Architects.



THE BILLINGS HOUSE.
Elberon, N. J. Warrington G. Lawrence, Architect.



THE BILLINGS HOUSE.

Elberon, N. J. Warrington G. Lawrence, Architect.



THE BILLINGS HOUSE.

Elberon, N. J. Warrington G. Lawrence, Architect.





THE BILLINGS HOUSE.

Elberon, N. J. Warrington G. Lawrence, Architect.



FIREPLACE.

Warehouse of Wm. E. Uptegrove & Bro.

No. 457 East 10th Street, New York City. Wilkinson & Magonigle, Architects.



WAREHOUSE OF WM. E. UPTEGROVE & BRO.

No. 457 East 10th Street, New York City. Wilkinson & Magonigle, Architects.



OFFICES.

Warehouse of Wm. E. Uptegrove & Bro.

No. 457 East 10th Street, New York City. Wilkinson & Magonigle, Architects.



ENTRANCE HALLWAY.

Warehouse of Wm. E. Uptegrove & Bro.

No. 457 East 10th Street, New York City. Wilkinson & Magonigle, Architects.

The
Architectural Record.

VOL. XVI. AUGUST, 1904. NO 2.

THE WORK OF RUTAN & RUSSELL, OF PITTSBURG.

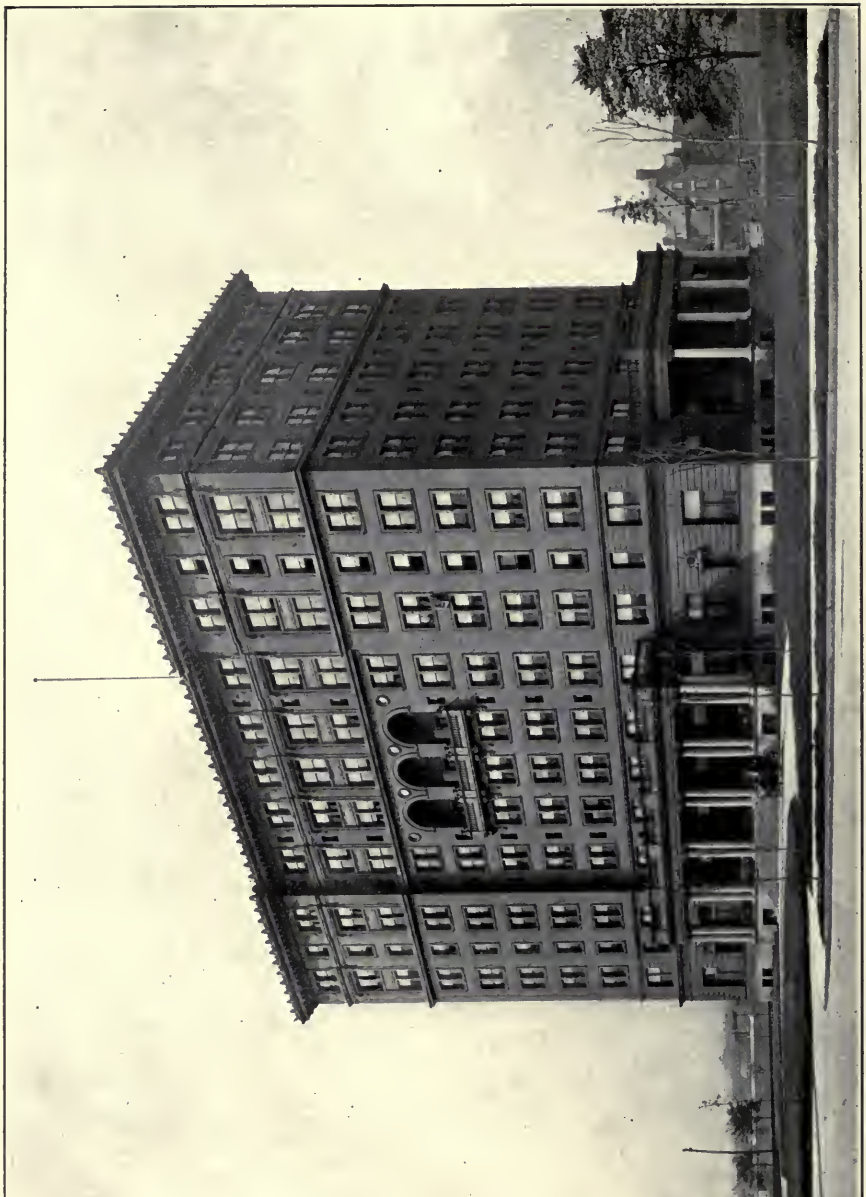
NOTHING is more certain than the Western march of empire. The broad waters of the Pacific acted as an impassable barrier to further Eastern expansion; humanity found more ample scope in the West for the development of its culture; and the steps of human progress can be noted, not alone in established centres, but by the creation of new centres, always Westward.

The modern movement in architecture, as observable in the United States, has a number of characteristics of its own. It looks both ways, both forward and backward. It has eyes upon the West and eyes upon the East. It is in no sense spontaneous, although the soil on which it is planted is new and barren of types on which it may model itself. On the whole, this condition is a disadvantage. Architecture is not a spontaneous art, but one of culture and development. It rests on models and achievements. Its progress is achieved on what has been accomplished; each new effort, like the courses of brick or stone in a building, depends on the solidity and actuality of what has gone before.

But America has nothing of its own in architecture that can, in any practical way, serve as a basis for modern use. The American architect, seeking for inspiration and suggestion, cannot scan the structures of his own land, but must hark back to the buildings of Europe, new and old. His originality is simply the re-adaptation of an art that flourished under conditions different from his own to the newer ideals of his Western home. It is his distinction that, under such circumstances, his work, while seldom possessed of the qualities of real greatness and real originality, is nevertheless highly distinctive, highly individual, admirably suited to its environic conditions, and often of very real interest.

It must be entirely patent that, save when the structures of other lands are frankly copied, our designs are our own. It is true

Copyright, 1904, by "Architectural Record Company." All rights reserved.
Entered May 22, 1902, as second-class matter, Post Office at New York, N. Y., Act of Congress, of March 3d, 1879.



HOTEL SCHENLEY.

Rutan & Russell, Architects.

Pittsburgh, Pa.



THE LOBBY—HOTEL SCHENLEY.

Rutan & Russell, Architects.

Pittsburgh, Pa.

enough that when some thoroughly American designs are called to mind this distinction is but a sorry one, and gives small comfort to the historian; but, taken as a whole, American buildings have qualities and often have character which stamp them indelibly as American, even though this result be reached only by exclusion. This, of course, is true of all national architecture. The buildings of England, of France, of Germany, to limit the list, have each essential qualities that mark them as the products of these various nations. The phenomenon is by no means peculiar to our own time or our own land; the single point of interest, so far as we are concerned, is that, without any models of our own, and with the necessity of basing our work on the achievements of other people, we should have given to our architecture qualities so marked and so personal.

But if we have no architectural models of our own on which to base our architecture, we have architectural schools and traditions in designing and methods, due to the strong personality of individual architects. The educational influence must increase each year, because its utility has long since been demonstrated beyond peradventure of contradiction. It is quite immaterial that the highly interesting and often very original architecture of our early history was largely produced by untrained men. Untrained they were, as training is now understood; but even these early architects did not labor without such aids as were available to them.

Architectural education has a double value, in not only producing men grounded in the elements of their professional work—for the most advanced schools do no more than this—but in setting up and diffusing a uniformity of architectural taste and ideas throughout the entire length and breadth of our country. No other nation has a larger area dominated by a single civilization; and in no other land are the demands made upon the architect so widespread and so uniform. It is true the United States embraces climates of varying kinds; the needs of California are not the needs of New York and Pennsylvania; yet the area in which our architectural needs are practically uniform is without parallel in modern times.

Architectural education is rapidly breaking down whatever barriers nature may have set up in matters of climate and space. Architectural education, architectural knowledge, the increase of an interest in architecture among the people, the prolificness of architectural periodicals, the amplitude of architectural information, all help towards the same end, albeit the supply is sometimes in excess of the demand. Yet positive as this movement is, it may be questioned if each centre in the United States has not an architectural quality of its own; not, indeed, so marked that we can refer each

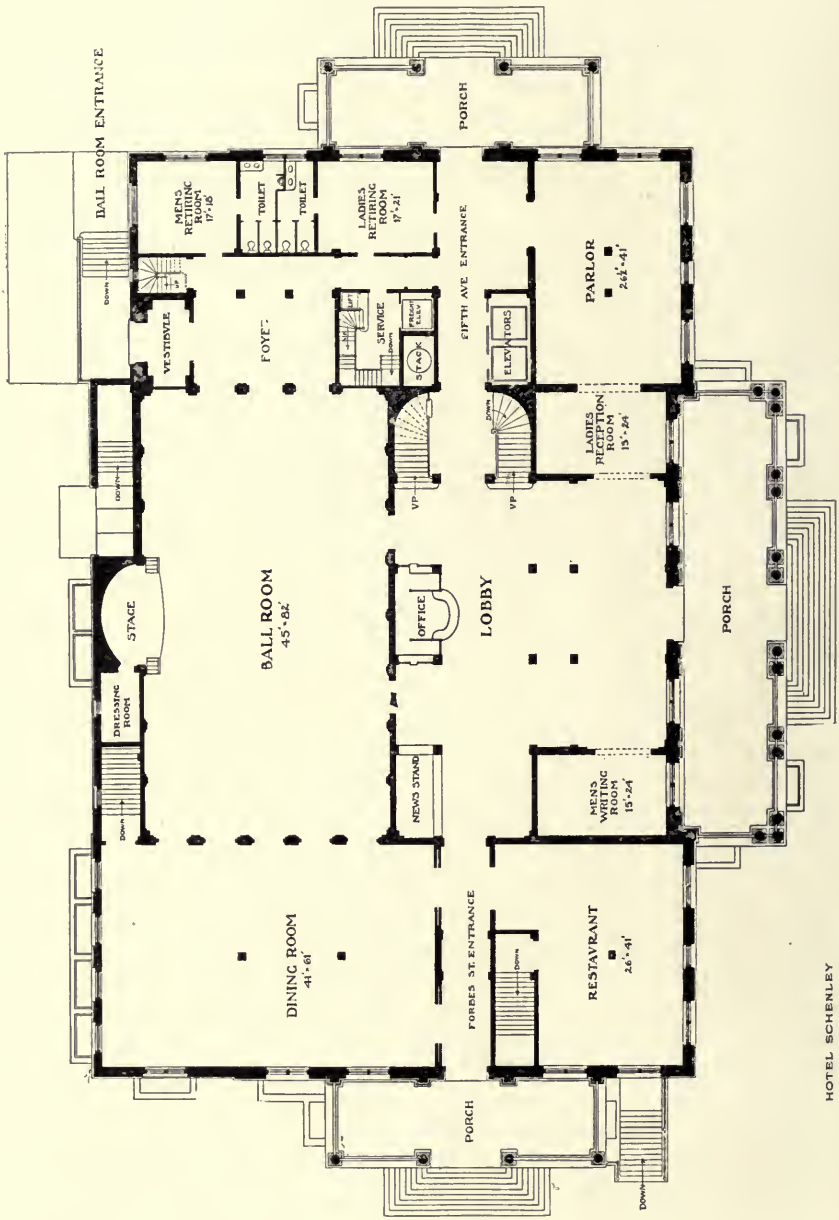
building to its locality by mere inspection—our intercommunication is much too close and intimate for that—but still so evident to the observer saturated with the architecture of the East, that the architecture of the West can truly be said to have a feeling all its own, a character that adopts itself to its own locality, an art that is still architectural, but architecturally Western.

For the origin of our architecture is the East. More costly buildings and more extended enterprises are to be found in the East than in the newer West. That the West is rapidly becoming a competitor of the East in things architectural is demonstrated by the proud pre-eminence of Chicago, which in not a few architectural matters is able to give lessons to the older communities on the Atlantic coast. But, like all progress in America, architecture moves Westward, and at each great centre has established a vogue and adopted a model which, if not entirely its own, is much unlike that of any other community.

In examining the work of any architect or group of architects whose work has been largely local, some quite distinctive aspects will be uncovered which have, it not the earmarks of locality, certain aspects which mark them as belonging to a special locality. The work of Rutan & Russell, of Pittsburg, may well be taken as an illustration of this thought. One does not look for the same interpretation of architectural problems in Pittsburg that one may find in New York. While some very extensive architectural operations have been carried on in Pittsburg in recent years, the scale, as a whole, is not the scale that obtains in the larger Eastern cities. The architectural methods and ideas will be much the same as in the East, but the interpretation will not be so grandiose; the decoration will not be so elaborate; the great house will not be quite the same kind of a great house that the East will offer.

The Hotel Schenley admirably illustrates these points. It is at once the largest work of Messrs. Rutan & Russell, and the most considerable hotel in Pittsburg. It is a building well thought of and much admired in Pittsburg, and this is quite natural, considering the fact that it has given to that city a hotel of the first rank in size, in a word, a thoroughly modern hotel. The requirements of such a structure are well known, and are summed up in the one word, completeness. There must be a place for everything, and everything must be arranged with absolute convenience.

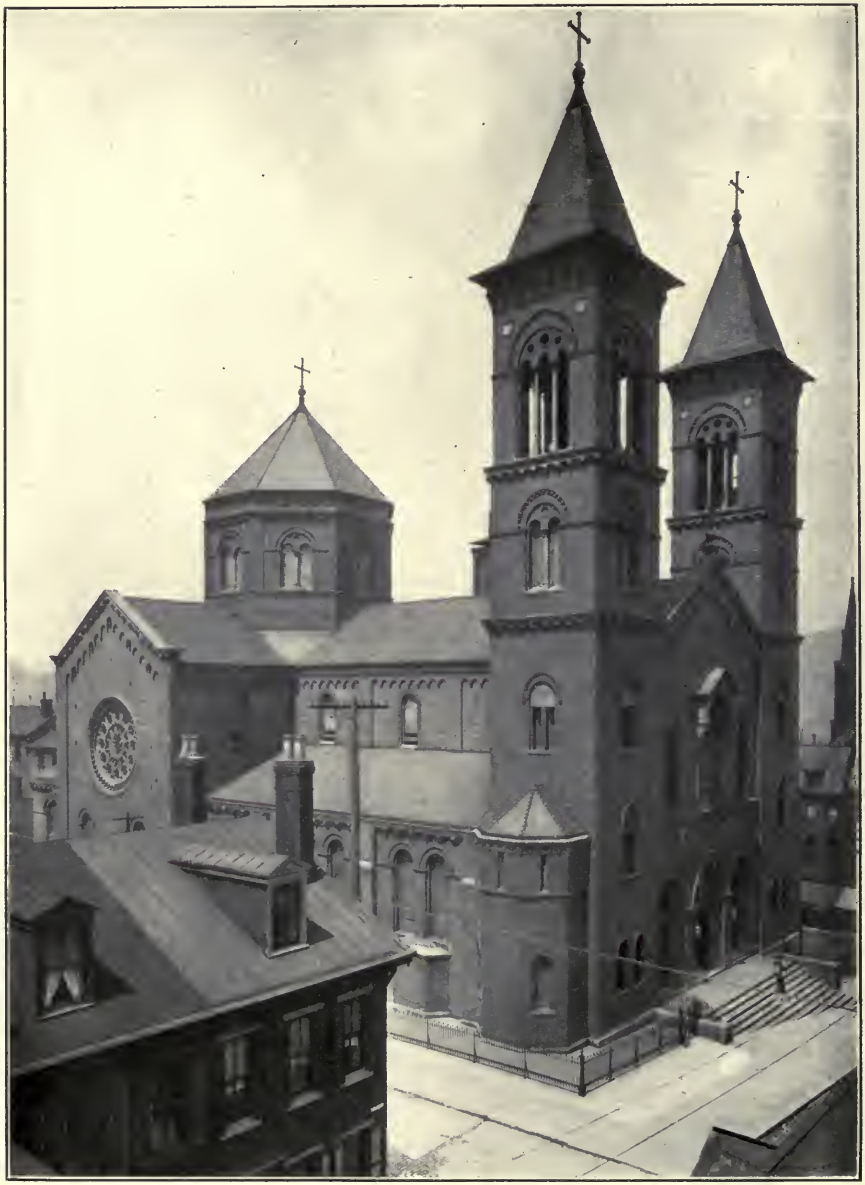
The exterior of the Hotel Schenley has been treated in an exceedingly direct and simple manner, and the architects have achieved a very great success by following this method. A slightly recessed centre is buttressed by two end wings projecting but slightly beyond the central line. These wings are so large that they are in no sense corner pavilions, but essential parts of the


BALL ROOM ENTRANCE
PORCH
MENS RETIRING ROOM 17'-6"
TOILET
TOILET
LADIES RETIRING ROOM 17'-21'
VESTIBULE
FOYER
SERVICE
FREIGHT ELEV.
FIFTH AVE. ENTRANCE
ELEVATORS
PARLOR 26'-41'
LADIES RECEPTION ROOM 15'-24'
STAGE
BALL ROOM 45'-82'
OFFICE
LOBBY
PORCH
DRESSING ROOM
NEWS STAND
MENS WRITING ROOM 15'-24'
DINING ROOM 41'-61'
FORBES ST. ENTRANCE
RESTAURANT 26'-41'
PORCH
HOTEL SCHENLEY
PITTSBURGH PA.
FIRST FLOOR PLAN.



HOTEL LINCOLN.

Pittsburgh, Pa. Rutan & Russell, Architects.



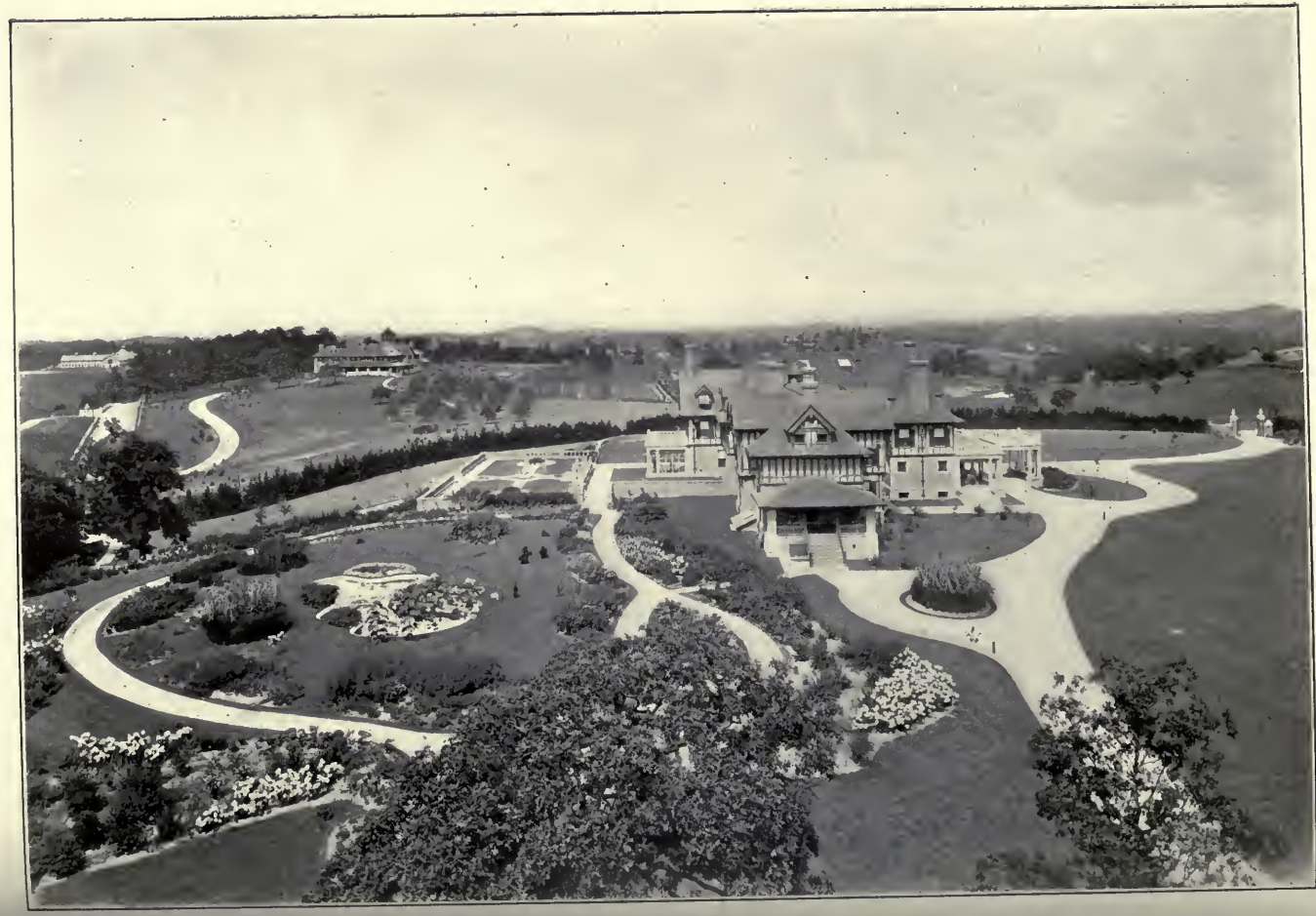
S. AUGUSTINE'S CHURCH.

Pittsburgh, Pa. Rutan & Russell, Architects.



DETAIL OF S. AUGUSTINE'S CHURCH.

Pittsburgh, Pa. Rutan & Russell, Architects.



THE RESIDENCE OF THE HON. B. F. JONES.

Sewickley, Pa. Rutan & Russell, Architects.



THE RESIDENCE OF THE HON. B. F. JONES.

Sewickley, Pa.

Rutan & Russell, Architects.



WATER-TOWER—RESIDENCE OF THE HON. B. F. JONES.

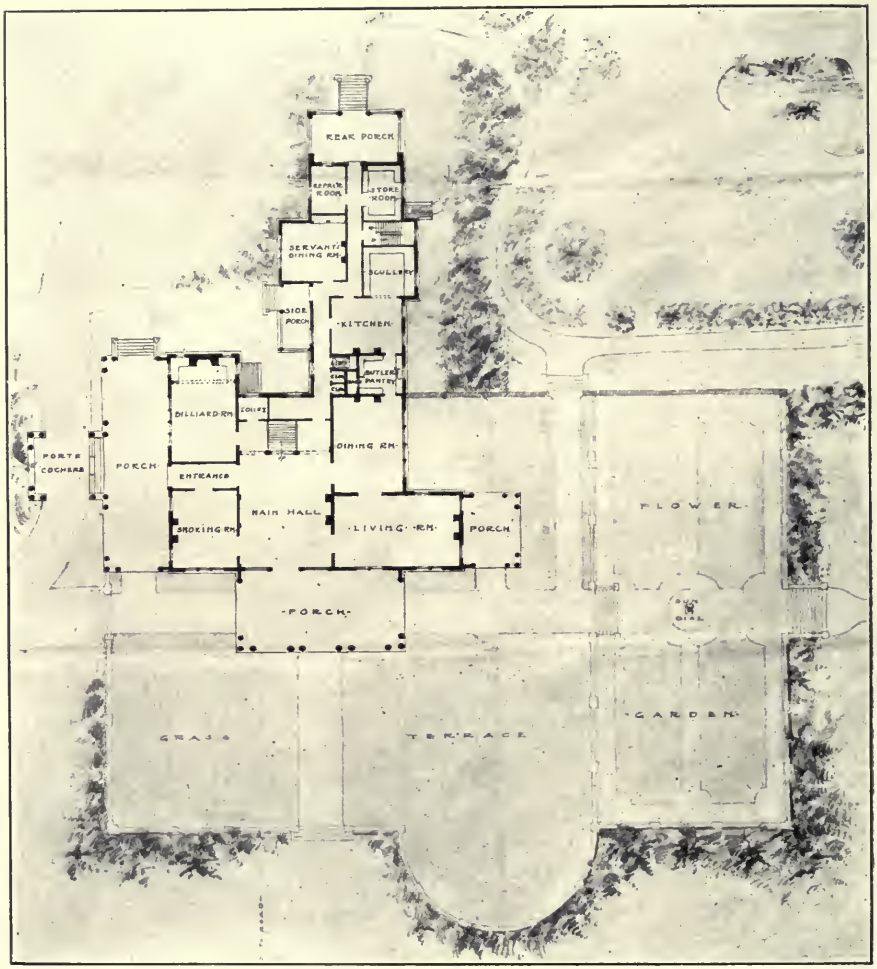
Sewickley, Pa. Rutan & Russell, Architects.



INTERIOR VIEWS IN THE RESIDENCE OF THE HON. B. F. JONES.

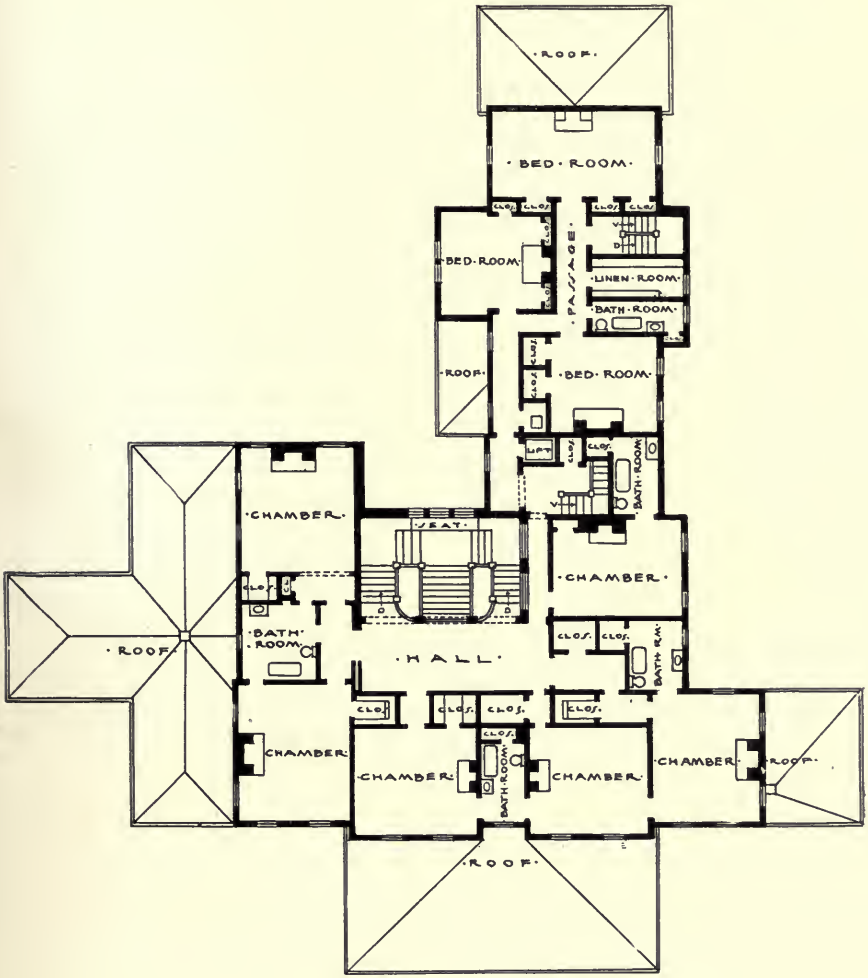
Hall and Billiard Room.

Sewickley, Pa. Rutan & Russell, Architects.



GENERAL PLAN OF THE RESIDENCE OF THE HON. B. F. JONES.

Sewickley, Pa. Rutan & Russell, Architects.

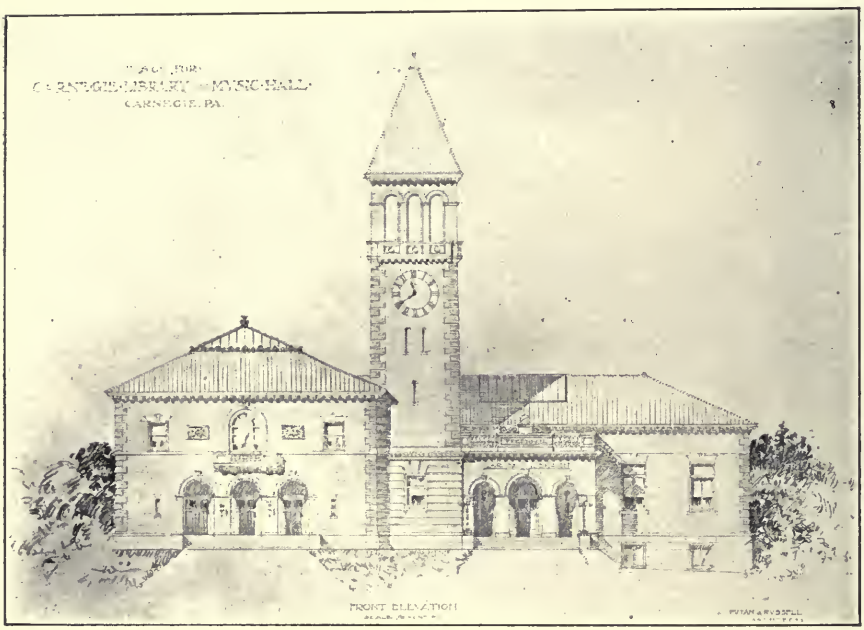


SECOND FLOOR PLAN
SCALE 1/16" = 1'-0"

RESIDENCE OF THE HON. B. F. JONES.

Sewickley, Pa. Rutan & Russell, Architects.

building, with sufficient variety of surface to break up a front that, without such a device, might be dull and uninteresting. The wall treatment is plain almost to severity, yet rightly so, for the architects have wisely recognized the fact that dignity, in a structure of this size, can only be had through simplicity. The windows are arranged chiefly in pairs, their rather decidedly marked frames offering the single decorative feature of the superstructure. The crowning member, which consists of two divisions, is somewhat un-



DESIGN FOR CARNEGIE LIBRARY AND MUSIC HALL.
Carnegie, Pa. Rutan & Russell, Architects.

necessarily marked, and an emphasis to the centre is given by the three arches in the sixth and seventh stories.

The hotel stands in spacious grounds, and has, therefore, a character and placement quite different from the usual city hotel placed on a crowded street. The non-metropolitan character is further enhanced by the porches with steps, so that the immediate surroundings and approaches are quite unusual in large city hotels of this class. A structure of this size and height appears somewhat incongruous in such a situation; but this is a circumstance over which the architects exercised no control. They have certainly produced a dignified and stately edifice, and, that done, nothing more remained to be accomplished.

The plan of the hotel discloses some peculiarities of its own. A

spacious lobby occupies the centre of the building; on one side is a ladies' reception room; on the other a men's writing room. Beyond, to the right, is a parlor; on the left is a restaurant. Corridors to the side porches and entrances cut off this front portion of the building from the other parts. Immediately behind the lobby is the ball room, which has its separate entrance on the rear to the right. On this side is a foyer and retiring rooms for men and women; the opposite corner of the building is filled with the dining



RESIDENCE OF EDWARD O'NEILL, ESQ.

Sewickley, Pa. Rutan & Russell, Architects.

room. Here, again, is a generous disposition of area, the ball-room separated from the other parts of the hotel, which, in their turn, are excellently arranged and spaced. The New York architect, with his ball-room on upper floors, and expensive and crowded construction, must envy these Pittsburg fellow-craftsmen in their opportunity to plan so broadly on the ground floor. As the ball room does not extend above the second floor, the plan of the upper parts of the hotel presents the form of a double T, of which the inner arms are much the longer. The plan of the upper floors scarcely calls for comment. With the exception of a ladies' parlor in one corner of the second floor they are practically identical, and consist of bedrooms with and without bathrooms, and arranged singly and en suite. Each wing has its corridor lighted from either

end; the corridor in the centre of the building is lighted from these halls. It is a plan eminently simple and direct, and, in fact, the only plan which could be followed in a building of the dimensions and shape of the present one.

The straightforward treatment that distinguishes the Hotel Schenley is characteristic of the Hotel Lincoln. This is a building of a very different type, standing on a street, and with interior courts that are unavoidable in deep buildings of comparatively moderate frontage. It is nine stories high; but the top story,



THE EDGEWORTH CLUB.

Sewickley, Pa. Rutan & Russell, Architects.

being above the heavy cornice which is the single enrichment of the front, does not count in the design. The entire façade is bare of ornament, unless the rusticated treatment of the first story be so considered. The window sills and caps, the grouping of the windows, and a simple string two stories below the cornice, constitute the sole features of the front. Yet it is remarkably good and strong, manifestly the work of architects who know how to treat a simple front simply, and who know how to make the most out of a problem that offers little opportunity.

A true appreciation of the value of wall surfaces appears to be characteristic of the work of Rutan & Russell. Their two hotels

show it in a very marked degree, and the same can be said of their S. Augustine Church. It is built of brick and terra-cotta, and is a very careful study in these two materials. The design is Romanesque, with strong Rhenish feeling in the shape of the towers and the octagon on the crossing. There is no surface decoration except in the string courses over the main portals; everything else is rigidly severe, the ornament being confined to window hoods and the characteristic row of small arches below the cornices. Interest is thus concentrated upon the portals, with their delicate



RESIDENCE OF E. H. UTLEY, ESQ.

Pittsburgh, Pa. Rutan & Russell, Architects.

twisted columns and arch mouldings of the same form. These portals are very well done, and give quite the needed interest to a design that, otherwise, must necessarily be plain almost to severity. The large niche containing the statue of S. Augustine immediately over the central doorway is hardly so happy, but the insertion of so large a statue in a conspicuous place in a front is an extremely difficult problem, and perhaps it could hardly have been solved otherwise than here.

The Phipps' Training School is another building in which the same feeling for surfaces and restrained treatment in general has been followed. The doorways are again properly elaborated, but entirely in harmony with the quiet treatment of the rest of the de-



RESIDENCE OF W. E. REIS, ESQ.
(Exterior and Main Hall.)

New Castle, Pa. Rutan & Russell, Architects.

sign. The building is a simple one of two stories, the roof, which forms the third story, being lighted with large dormers whose carved consols are, with the ornament of the doorways, the single bits of ornaments in the fronts. Properly speaking, the building has no cornice; but the string course at the top is surmounted by a low piece of wall on which the dormers rest, and behind which the base of the roof is concealed. A piece of wall is here transformed into an ornamental feature, which satisfactorily fills the function of a crowning member, and does it very admirably.

The building for the Chartiers Trust Company is a structure of a very different type, yet it may be referred to here. Built in a small town and for a financial institution of comparatively modest resources, it is naturally a building of moderate size. So much space is here given to windows that the wall hardly amounts to more than an enclosure for the window frames. The classic portal, with its entablature and pediment, is, however, entirely unrelated to the other parts of the design. It is an interesting little structure, on the whole, and yet it has a family likeness to many other structures of a similar size which have appeared quite numerously throughout the country in the last few years.

The demands made upon a busy architect by the exigencies of modern practice are so varied that except in a few occasional instances it is impossible to look for uniformity of ideas and methods in the work of any one man or group of men. This is especially true of domestic architecture, which is so largely influenced by the taste and predilection of the owner and by the necessarily varying conditions of cost and site. It is no criticism of Rutan & Russell to remark of their domestic work that it offers a very decided range of styles and forms. The same may be said of the work of most architects, and is as much a truism as to point out that the utmost variety exists in domestic architecture as a whole, since houses erected for different persons by different architects may be expected to exhibit a corresponding difference in design. A brief survey of some of the more important houses built by this firm will make clear their achievements in this very important branch of architecture. That most of these are country or suburban residences but emphasizes the good fortune of the architects in having houses of this sort to build. That not a few of them are houses of considerable cost is a further advantage. No house is easy to design, easy in the sense of being told off by rule of thumb; but the designing of suburban houses is hedged in by none of the rigid requirements that surround the designing of the city house. The suburban house has at least air and space, and offers many more opportunities for individual treatment than the city house, which, in point of view of external design, is often

nothing more than a piece of wall, with the very marked disadvantage of having no relationship with the adjoining wall pieces.

The house of the Hon. B. F. Jones, at Sewickley Heights, is a country residence of large size. It stands in the midst of grounds which, while ample, are not excluded from the scrutiny of nearby neighbors. It is a large house, generous in size, standing in large grounds, and with agreeable appurtenances of subsidiary buildings. Three sides of the lower story are almost completely masked by broad porches, to one of which is prefixed a porte-cochère. This floor is of brick; the upper is of half-timber work,



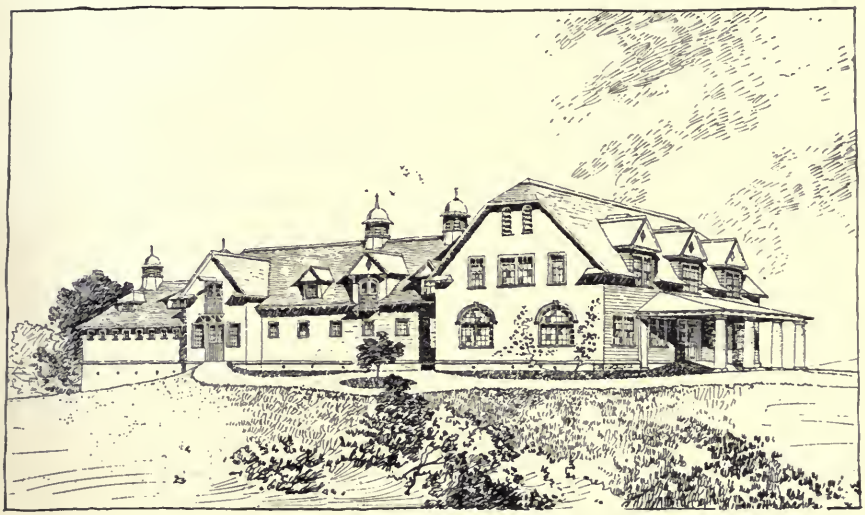
RESIDENCE OF GEO. W. McCALLAM, ESQ.

Pittsburgh, Pa. Rutan & Russell, Architects.

with gable ends, which give a very happy variety to the roofing outlines. It is an ample country home, so large that nearly half of the ground floor is given up to the kitchen and service rooms; yet it is eminently "homelike" in feeling, perhaps the highest praise that can be given to any house.

The residence of Mr. W. E. Reis, at New Castle, Pa., is a structure of very different type. The picturesque English style of the Jones house here gives way to Colonial models. The house is built wholly of brick, with a spacious porch on the main front and the inevitable porte cochère on one side. The corners are given a pilaster-like finish by Ionic capitals, and a similar device supports the small central pediment on the main front. As in much of the best work of Rutan & Russell, there is little ornament, but the

walls are strongly treated, and the whole exterior is characterized by a fine dignity. As in most large modern houses, the interior is richly treated. The architect who is called upon to build a large modern house is no longer content to turn it over to the occupant with plain walls and the slightest of structural decoration. The interior of the house now calls, and rightly calls, for elaborate study by the architect, and Messrs. Rutan & Russell offer no exception to what is now the established custom in all domestic work of some size. The main hall of the Reis house is an elaborately designed room, with a beamed ceiling, ornamental "grand" stairway, and supporting columns. The oval dining room is panelled through-



STABLE OF THE COUNTRY CLUB, OF PITTSBURGH, PA.
Rutan & Russell, Architects.

out, with closets let into the walls, and panelled pilasters carrying the carved cornice.

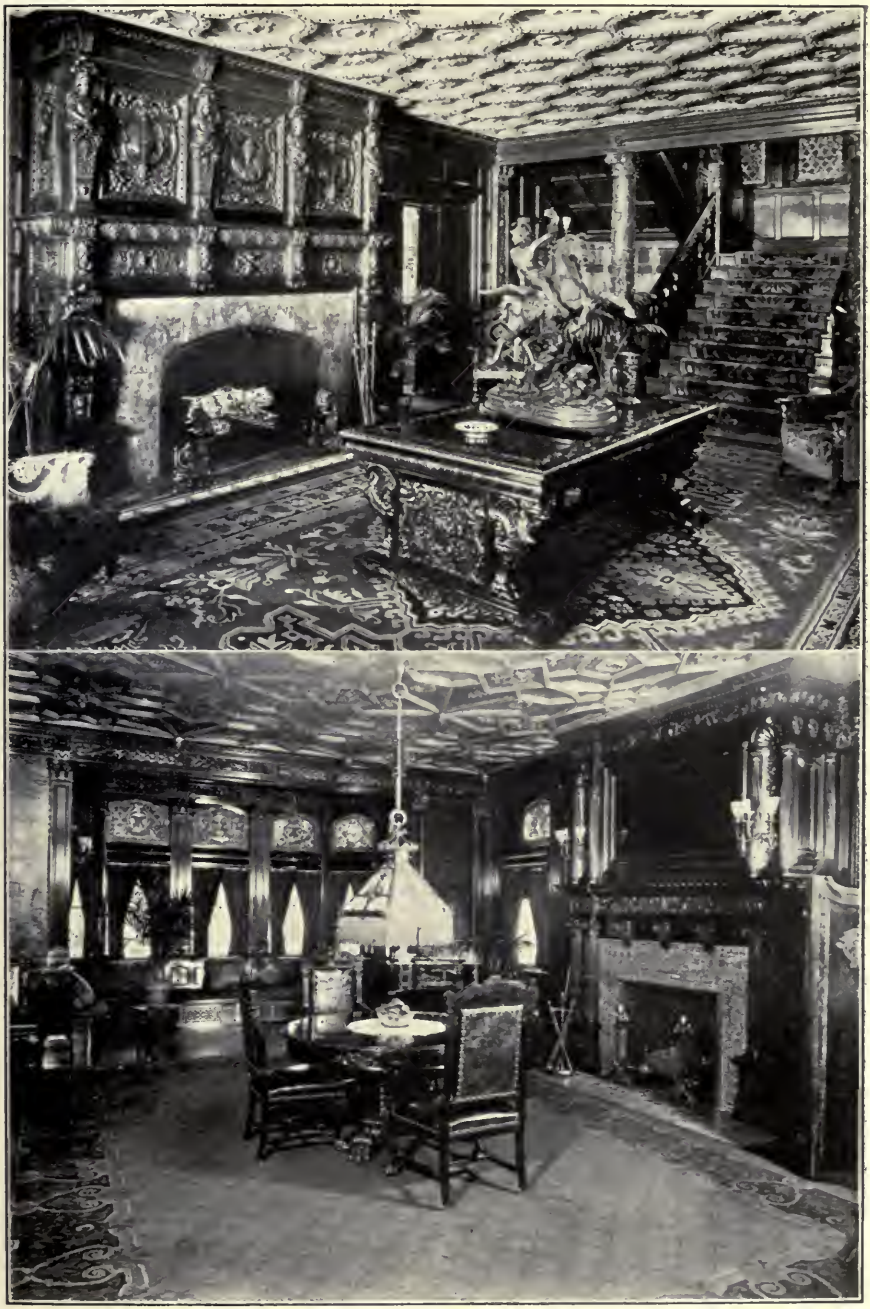
The house for Mr. W. H. Rowe, in Pittsburg, is of a different type, although standing in grounds spacious enough to give it suburban character. It is built wholly of brick, with brick porches and porte-cochère. The main front has two gable ends, with large bow windows. But the architects' feeling for concentration of ornament is further illustrated by the general severity of every part except the spandrils of the main arches of the front porch and the pierced balustrade of the two porches. The sobriety of the exterior, however, hardly prepares one for the gorgeousness of the interior, although the size and character of the exterior directly suggests that the interior must have some special importance. No part of the main hall is without decorative treatment.



RESIDENCE OF W. H. ROWE, ESQ.

Rutan & Russell, Architects.

Pittsburgh, Pa.



INTERIORS IN THE RESIDENCE OF W. H. ROWE, ESQ.

Pittsburgh, Pa. Rutan & Russell, Architects.

The mantelpiece is most elaborate; the ceiling is in high relief; even the columns which support the stair space have their own rich dress of surface decoration. The dining room likewise has a ceiling in decorative relief, and is supported by panelled walls and elaborate mantel. This enrichment of the interior, however, is more a tendency of the times than the characteristic work of any architect. These interiors are more interesting as highly finished



CHARTIERS TRUST CO. BUILDING.

McKees Rocks, Pa. Rutan & Russell, Architects.

rooms than characteristic examples of the work of these Pittsburg architects.

Another version of the old Colonial is the house of Mr. Edward O'Neill at Sewickley. It is architectural parts—the windows let into ample wall space, the porches, the high sloping roof, the dormer windows—which give character and distinction to this fine house. The house for Mr. James Todd, in the same suburb, is built of stone. A stone wall encloses the terrace and porch, and again



INTERIORS IN THE W. H. SCHOEN RESIDENCE.

Pittsburgh, Pa. Rutan & Russell, Architects.



THE KIRKWOOD.

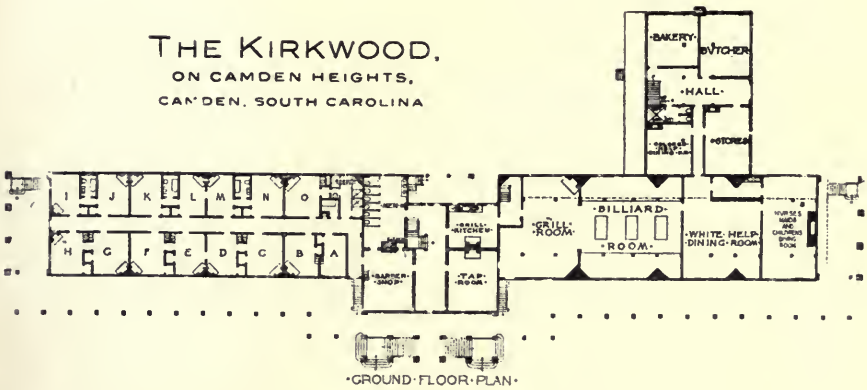
Rutan & Russell, Architects.

Camden, S. C.

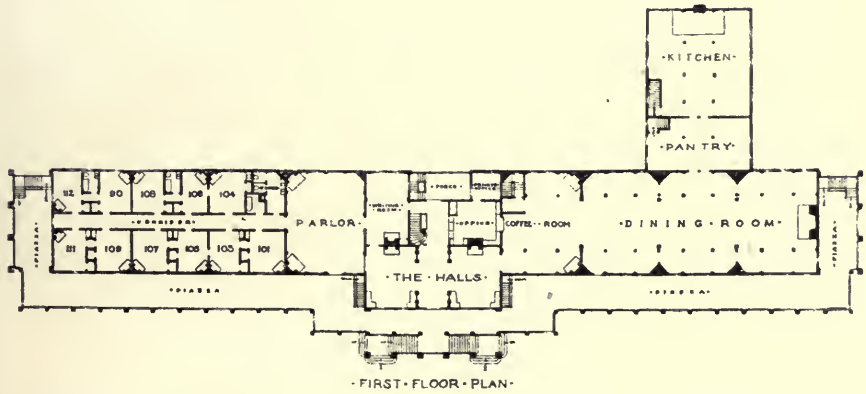
there is the dependence on materials alone for effect, for of ornament there is none at all.

The house of Mr. E. H. Utley, in Pittsburg, has a pleasant suburban air, as have many houses built in the non-crowded portion of our growing cities. The first floor is of stone; the upper of half-timber work; the whole effect is picturesque. Much more modest than any of these houses is that for Mr. George E. Mc-

THE KIRKWOOD,
ON CAMDEN HEIGHTS,
CAMDEN, SOUTH CAROLINA



GROUND FLOOR PLAN



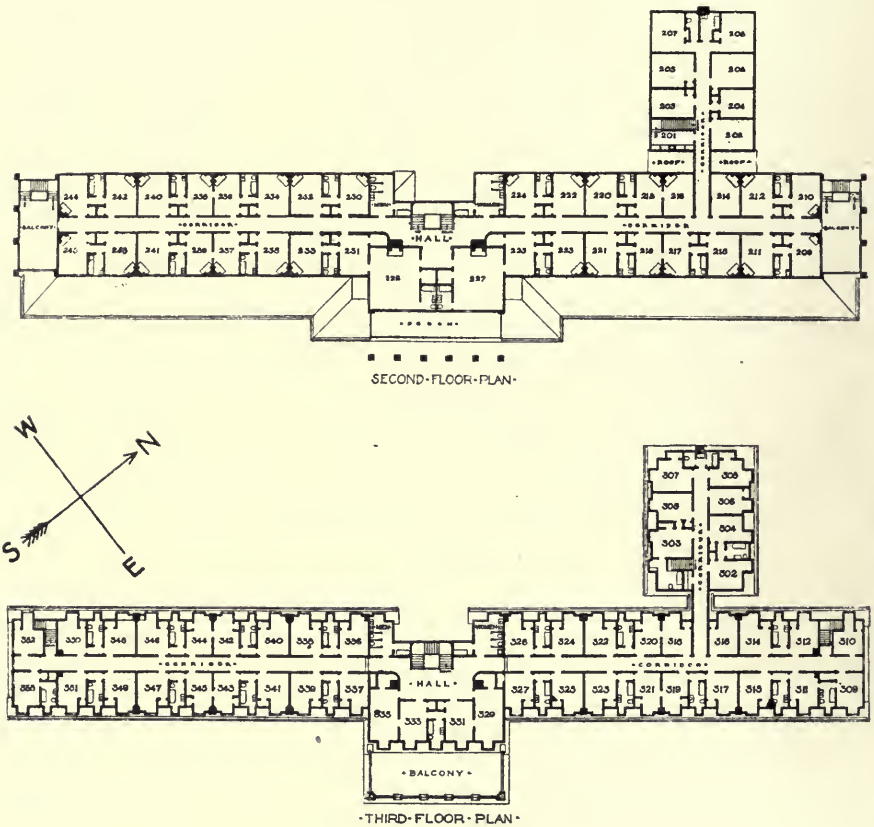
FIRST FLOOR PLAN

Callan, also in Pittsburg. It is hardly more than a cottage; the lower story in brick is surmounted by a gambril roof in shingles; it is an interesting study in the designing of small houses.

The Edgeworth Club of Sewickley is a building that, in some aspects, might be mistaken for a comfortable country home. This, of course, is exactly what a country club is intended to be, and very successful and good the present example is. The building is shingled throughout, and is an interesting study in structural form,

since of ornament, as it is generally understood, there is none at all.

Is it possible to draw some general conclusions from the work of Messrs. Rutan & Russell from this hasty review of some of their more important work? It is well known that they are among the leaders of their craft in Pittsburg. It is apparent from what has been said, and from the illustrations which accompany this article,



THE KIRKWOOD.

Camden, S. C. Rutan & Russell, Architects.

that their work has embraced some of the largest structures in their own city, and has well covered the wide range of subjects attained by all architects of prominence. Excellence of workmanship is perhaps the most notable characteristic of all these designs. Sobriety of treatment is another point in their favor. The building of buildings as buildings, of obtaining effects of form and shade through constructive materials, is clearly enough their most indi-

vidual point. This in itself is so rare and unusual, and the results obtained are so generally satisfactory, that special importance should be attached to it.

How far their art may be characteristic of Pittsburg is a more delicate question. It is certainly not provincial and certainly not Western. It compares most favorably with work of similar cost and size erected elsewhere. No doubt, had the Hotel Schenley been erected in New York it would have been more grandiose in

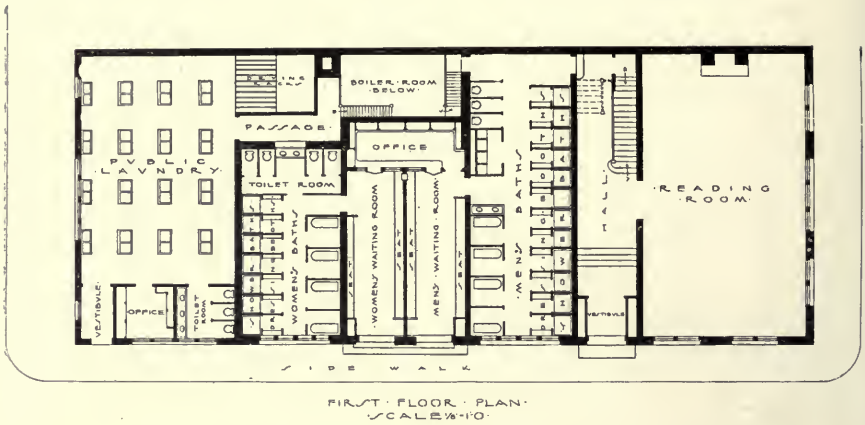


THE PHIPPS TRAINING SCHOOL.

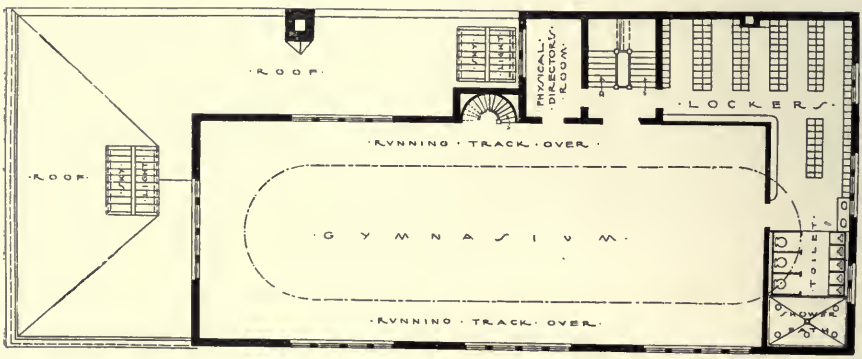
Allegheny, Pa. Rutan & Russell, Architects.

design or more elaboratly treated with ornament. But it would not, because of that, have been a better hotel, nor one better adapted to the requirements that might be demanded of it. But, taking all this work as a whole, it is evident that Pittsburg has reason to be completely satisfied with the standard set by buildings which so thoroughly testify to the strength and ability of their creators.

Barr Ferree.



FIRST FLOOR PLAN.
SCALE 1/8"-1'0"



SECOND FLOOR PLAN.
SCALE 1/8"-1'0"

PLANS OF THE PHIPPS TRAINING SCHOOL.

Allegheny, Pa. Rutan & Russell, Architects.



THE NEW HOTEL ASTOR.

Long Acre Square, New York City. Clinton & Russell, Architects.

ARCHITECTURAL REFINEMENTS IN EARLY BYZANTINE CHURCHES AND FRENCH CATHEDRALS.*

IN the Architectural Record for July-September, 1896, Vol. VI., No. 1, was published an essay on "Optical refinements in mediæval architecture," which was followed by a series of six papers under various individual titles, but all relating to the same general subject (the concluding paper of this series was published in Vol. VII., No. 3, for 1898).

These papers furnished the report of an investigation which had been undertaken by the writer under the auspices of the Brooklyn Institute of Arts and Sciences, and which was carried on, in Italy, between the months of May and October, inclusive, of 1895. The general results of this investigation were summarized in the preliminary report, having the above-quoted title, under fourteen headings, and from these announcements we will now draw attention to the following, which were the first three in order of mention.

The first announcement related to vertical curves in mediæval church interiors: "The construction of the piers of many mediæval churches in a delicate curve, sometimes leaning into the nave, sometimes bending back from the nave, and in either case making a delicate return curve to the arch of the vaulting." The second heading announced the existence of "a refinement analagous to the last-named, and probably the original and earlier form of it," viz., the survival in the Middle Ages of the classic entasis.

The third heading mentions: "A refinement possibly or probably derived from the first-named, and frequently connected with it; a leaning outward and away from the nave of the nave piers, in phases grading from an exaggeration of the backward bend, and continuing the curve, to others in which the leaning backward, or spread, of the nave piers is in a straight line and not in a curve."

For the sake of brevity this arrangement will be described as the "widening" or the "widening refinement" in the later mentions of this paper. An account of the motives probably underlying this refinement has been given in Memoir No. 2 of the Brooklyn Museum Memoirs of Art and Archæology.*

It was further mentioned in the preliminary report that careful attention had been given to the question whether accidental causes might not be a sufficient explanation of the phenomena, and that

*The illustrations of this paper are from photographs of the Brooklyn Museum Surveys, of the series of 1903.

*"The Architectural Refinements of St. Mark's at Venice," with 14 plans and 44 illustrations. Published by the Macmillan Company.

a negative answer to this question must be given. This question was also subsequently debated at considerable length in two of the following papers, which were respectively entitled, "A discovery of the entasis in mediæval Italian architecture," and "An echo from Evelyn's diary."

Observations in Italy.

As far as Italy is concerned all possible scepticism as to the refinements just described was laid to rest in 1901. In the Summer of that year additional observations were made, of a wholly convincing character, which bore on the announcements just quoted. Other observations which had previously been a matter of personal assertion were corroborated by photographs and measurements. Finally, certificates regarding the constructive facts in the two most celebrated Romanesque buildings of Italy were obtained from the Italian engineering experts who were respectively in charge of the Pisa Cathedral and of St. Mark's at Venice.

A review of some 3,600 words in length, by Antonio Taramelli, accepting the statements which had been published on behalf of the Brooklyn Museum Surveys, had meantime appeared in L'Arte, the leading art journal of Italy (Vol. III. for 1900). A review accepting the announcements for St. Mark's at Venice was subsequently published by Alfredo Melani, in the Gazetta di Venezia for November 9, 1903. Personal letters, of an approving character, were also addressed to the author of the reports, by Giacomo Boni, the excavator of the Roman Forum, who has been at various times associated with the repairs of St. Mark's, by Francesco Saccardo, one of the authors of Ongania's publication for St. Mark's, by Professor Pompeo Molmenti, President of the Venetian Academy and a distinguished authority on the history of Venetian and Italian art; by Baron Henry De Geymüller, the distinguished German architectural authority, who has edited the most recent edition of Burckhardt's "Cicerone" for Italy, and by other experts of distinction.

Under these circumstances it is sufficient to say for the observations in Italy regarding vertical curves and bends, and the system of diverging piers, that they have so far included some twenty-one Italian churches and cathedrals, most of which have been illustrated in one or more publications, and especially in Memoir No. 2 of the Brooklyn Museum Memoirs of Art and Archæology.

Among these twenty-one churches it would be possible to single out a few in which the observations might not be regarded as wholly convincing, from the standpoint of an engineering expert, but the following list may be regarded as a list of impregnable cases from

the standpoint of the expert in construction: St. Mark's and S. Giorgio Maggiore at Venice; the Cathedral and S. Lorenzo, at Vicenza; S. Ambrogio and S. Eustorgio at Milan; S. Michele, at Pavia; Ss. Pietro e Paolo, Bologna; the Cathedral of Borgo San Donnino; the Cathedral and S. Paolo Ripa d'Arno, Pisa; Sta. Maria della Pieve, Arezzo; S. Agostino, Orvieto; and the Cathedral of Trani.

Before speaking of churches outside of Italy it is important to rehearse the evidence for constructive intention in the instances mentioned.

St. Mark's at Venice. Certificate from the engineering expert in charge of the church in 1901. Unanimous concurrence of other experts in Venice, as far as heard from. The widening of the nave (nearly 3 ft. in amount) would have caused the collapse of the church, if it had been accidental. The widening effect of the left aisle is managed by inclinations of engaged columns against a wall which has the north vestibule on its opposite side. The widening effect in the north vestibule is obtained (on the given side) by leans of engaged columns, which incline against the wall in the direction opposed to that of the engaged columns in the left aisle. In other words, engaged columns lean against the same wall in opposed directions on opposite sides. The inclinations by which the widening is effected in the side aisles are repeated in engaged pilasters facing the transept walls, which are not exposed to thrust or settlement. The east and west leans of the transept system are found in the engaged pilasters of the north and south end walls of the transepts. The engaged pilasters in the angles of both transepts repeat the leans called for by the general system of parallel treatment, at points where such leans could not be caused by thrust or settlement. The north and south leans of the end walls of the transepts (which are not subjected to any thrust), lean out to an amount (of over one foot in thirty feet) which would have caused the collapse of the adjacent arches, if these leans were accidental, whereas these arches are all perfectly true and in good condition.

S. Giorgio Maggiore at Venice. Aside from the widening of the nave, the refinement is systematically employed in the piers of chapels in the side aisles which are not exposed to thrust. The widening is not produced by an exaggerated entasis, because the same entasis is found on both sides of each aisle, whereas the widening lean is only found on each exterior side of the aisle.

S. Lorenzo, Vicenza. The widening of the side aisles is repeated in an outward lean of the exterior accessible wall, having buttresses of homogeneous and contemporaneous construction with exterior perpendicular faces.

S. Agostino, Orvieto. The inside widening is repeated in exterior outward leans of the side walls, while the buttresses, of homogeneous and contemporaneous construction, have faces which lean inward against the walls.

Vicenza Cathedral. The vertical curves are found in the pilasters of the chapel walls which face on the nave and which are 25 ft. deep.

S. Ambrogio, Milan. S. Eustorgio, Milan. S. Michele, Pavia. The widening is carried out in the aisles by leaning pilasters, which face chapel walls of considerable depth, and which are at right angles to the line of thrust.

Borgo San Donnino. The widening appears in the apse, in pilasters which are not exposed to thrust.

Ss. Pietro e Paolo, Bologna. The widening of the clerestory walls extends to the points at which they are interlocked in the end walls, and where they are not exposed to thrust.

Pisa Cathedral. Vertical curves in the piers at the crossing. Certificate for constructive facts from Signor Annibale Messerini, engineering expert in charge of the building.

S. Paolo Ripa d'Arno, Pisa. Vertical curves in engaged pilasters at the apse which are not exposed to thrust.

Sta. Maria della Pieve, Arezzo. The widening system is carried out so as to include engaged pilasters which are not exposed to thrust or settlement.

Cathedral of Trani. The widening of the nave piers at the transept crossing extends from the pavement up. The thrust of the arch is inconsiderable, and it thrusts against transept walls of considerable depth.*

It may be frankly admitted that there is no impregnable constructive evidence to be offered for the following seven Italian churches: Cremona Cathedral (vertical bends bulging into the nave to the height of the aisle, with marked widening in the upper nave); Perugia Cathedral (piers leaning outward in straight lines from the pavement up); Arezzo Cathedral and Sta. Trinitá, Florence (vertical curves); Siena Cathedral (ruined portion, vertical bends, doubtful case); Cathedral of Aosta (not personally examined); Capella Palatina, Palermo (widening of the apse comparatively insignificant).

The following list mentions a number of important Italian mediæval churches which were examined in 1895 (some of them reexamined in 1901), and in which the refinements of the widening, or of the vertical bends and curves, have not been so far observed: Venice, Churches of the Frari and of Ss. Giovanni e Paolo; Ravenna, S. Vitale; Ancona, S. Ciriaco; Bologna, S. Petronio; Padua,

*All the buildings cited are represented by large photographs in the Brooklyn Museum exhibit, excepting Borgo San Donnino.

S. Antonio; Verona, the Cathedral and Sta. Anastasia; Milan, the Cathedral; Piacenza, the Cathedral; Modena, the Cathedral; Parma, the Cathedral; Florence, the Cathedral and Sta. Maria Novella; Lucca, the Cathedral; Assisi, the Cathedral; Siena, the Cathedral (completed portion); Rome, Sta. Maria Sopra Minerva.

The above list of negative results is confined to vaulted buildings, as the refinements in question would be unavailable in columnar basilicas, outside of the apse, unless they resembled the Pisa Cathedral and Trani Cathedral in having transepts with piers supporting arches which span the nave at the crossing.

It will be noticed that the observations in Italy for the refinements which are in question in this paper are very evenly balanced numerically, as regards positive and negative results.

As regards period there is no late Gothic church in Italy, and only one Renaissance church, which has so far been observed to show the given refinements. On the other hand, the list of observations with negative results includes several late Gothic examples.

If the negative results are compared with positive results for the Romanesque period, it appears that the positive results are obtained in several buildings of Romanesque period having great fame and distinction, such as St. Mark's at Venice; S. Ambrogio, Milan; S. Michele, Pavia, and the Pisa Cathedral. These may be contrasted with the less important Cathedrals of Modena, Parma and Piacenza, Padua and Ancona.

As regards buildings of distinctly Byzantine character, we have the splendid St. Mark's at Venice, on the positive side, as against the less important S. Vitale on the negative side.

The situation for Italy, as far as known, may then thus be summarized. No late Gothic examples of the particular refinements in question are so far known. Several early Gothic examples are known, among which Cremona Cathedral (if admitted as a constructive case) must be considered very important. The Romanesque churches giving positive results are more important buildings than those giving negative results. The most famous church in Italy is the only one known in Italy in which there are intersecting systems of vertical bends for both nave and transept. (In St. Mark's the details of the intersecting systems are elaborated with incredible ingenuity and persistence.)

The conclusions to be drawn from the above comparisons for Italy would be that the given refinements were gradually abandoned before or during the close of the Gothic period, and that they were introduced into Italy under Byzantine influence.

Observations which were undertaken in 1903 at Constantinople have confirmed the conclusion regarding Byzantine influence. Observations in France have much increased the list of early Gothic

cathedrals showing the given refinements, but they have not antagonized the conclusions regarding the later Gothic period.

Observations at Constantinople.

It is the special object of the present paper to give an account of observations which were made at Constantinople and in Northern France, during the Summer of 1903, for vertical curves and bends and for the phenomenon of constructive divergence, or widening of mediæval interiors in the upward direction. These observations will be offered as far as possible in the shape of photographs, with comments and descriptive text relating directly to the photographs.

Fig. 1.—Balaban Aga Mesjid, Constantinople; an undated small Byzantine church, with apse showing an outward divergence, in the lines rising to the arch, of 5½ inches in a height of 12 ft.; width at the pavement, 7 ft. This is an impregnable constructive demonstration for the use of the widening refinement. A short plumb-line hanging from a nail on the right side of the apse establishes the perpendicular. The surveyor's rod (6 ft. high), on the right, furnishes a scale of dimensions.

Fig. 2.—St. Mary Diaconissa, Constantinople; dating 599. View looking toward the entrance. The piers diverge in straight lines from the pavement up. There are plumb-lines on each pier (which are, however, not suspended for the entire height of the church). Surveyor's rod on the right (6 ft. high). It is apparent in this picture that a vaulting thrust could not have spread the piers in this fashion in straight lines beginning at the pavement. This case is palpably constructive. Height to the vaulting, 33 ft., widening at the arch, 16 inches; width at the pavement, 25½ ft.

Fig. 3.—St. Mary, Diaconissa, Constantinople. View looking toward the choir; showing vertical bends of a character which are palpably not due to thrust. Height to the springing of the vaulting, 33 ft.; amount of the bend on the right side, 11 inches. Total widening, something less than 22 inches.

This church has the plan of a Greek cross. The transept arms of the cross exhibit similar bends, which are transverse in direction to those illustrated, thus anticipating by four hundred years the arrangement found in St. Mark's at Venice.

Bends similar to those of St. Mary Diaconissa are found in Sta. Sophia, but permission to make photographs in this mosque could not be obtained. In the commercial photographs of Sta. Sophia the bends are concealed by the large shields, on which are inscribed the names of the companions of Mohammed, which are hung in the angles of the mosque. These bends could be photo-



FIG. 1. APSE, BALABAN AGA MESJID, CONSTANTINOPLE.



FIG. 2. ST. MARY DIACONISSA, CONSTANTINOPLE.



FIG. 3. ST. MARY DIACONISSA, CONSTANTINOPLE. FROM THE GALLERY, LOOKING TOWARD THE CHOIR.

graphed to great advantage from positions in the rear of the shields. Procopius, who wrote a description of the church in the 6th century, mentions that the building "rises from the ground, not in a straight line, but setting back somewhat obliquely."*

The Brooklyn Museum exhibit of enlarged photographs includes another Byzantine church at Constantinople, the Church of the Monastery of the Chorah (11th-13th centuries), which is quoted by Fergusson and other authorities as having furnished the model for the primitive façade of St. Mark's at Venice. This church also has the plan of a Greek cross, and also has two widening systems which intersect one another. The marble casing of the interior is well preserved.

As measured at the choir, the outward bends result in a widening of 9 inches in a height of 21½ ft., with a width at the pavement of 20 ft. The outward bend is partly effected by the inclination and stepping back of four courses of marble panelling, which are directly under the half-dome of the apse. The constructive arrangement of these panel courses is clearly apparent in the excellent enlarged photograph of this church, which is on exhibition in Brooklyn.

The photographs made in Constantinople include fourteen from St. Mary Diaconissa, four from the Church of the Monastery of the Chorah, and three from the Balaban Aga Mesjid. They establish, beyond dispute or cavil, the use of the widening refinement, both with and without vertical bends, as having existed in Byzantine architecture as far back as the 6th century of the Christian Era.

The results indicated by observations in Italy, and especially in St. Mark's, are thus definitely confirmed.

Observations in Northern France.

The following illustrations are selected from a large number of photographs which were made in Northern France in the Summer of 1903.

Fig. 4.—St. Jean at Caen. Two instances have been so far observed in France of the widening in late Gothic. One of these has been selected as an opening illustration for France, because it appears to show very successfully the artistic effect which was obtained and desired by the widening system. This effect is most easily appreciated in naves of relatively low proportions. In this church the system appears to be confined to the piers at the intersection of the nave and transept. By plumb from the gallery the second pier at the transept on the right was found to incline out-

*See p. 25 of Lethaby and Swainson's work on Sta. Sophia.



FIG. 4. ST. JEAN, CAEN, FROM THE CHOIR.

ward 5½ inches in a height of 35½ ft. The entire amount of widening is thus about 10 inches.

Fig. 5.—Choir of the early Gothic Church of St. Loup, at Chalons. Although this view is confined to the choir, the widening system is found throughout the nave. The widening at this point amounts to 13 inches in a height of 32 ft. The width between piers is 24 ft.

This view illustrates, like Fig. 4, the relatively infrequent cases in which the piers of the nave diverge in straight lines, beginning at the pavement. Similar constructions were otherwise found, in 1903, only in St. Thomas at Strassburg and in the church of the Monastery of Montierneuf at Poitiers.* Parallel cases in Italy, for piers diverging from the pavement up, are S. Ambrogio at Milan, the church of Sta. Maria della Pieve at Arezzo, and the Cathedral of Perugia.

The Curate of St. Loup gave the information that the architect in charge of the repairs of the church (M. Aubertin) is familiar with the constructive facts, and that he explained the system of construction as related to the feeling which designed the horse-shoe arch. The same suggestion of a feeling akin to that of the horse-shoe arch is found in the church of the Monastery of the Chorah at Constantinople.

Fig. 6.—The windows at the ends of the aisles of St. Loup at Chalons are built with mullions and exterior sides leaning off in lines which are parallel with the leaning piers. In Fig. 6 we see the window of the right aisle. The pier on the left is the one which is seen on the right in Fig. 5. A plumb-line is suspended from a nail on the right side of the window. (The pole by which the line has been raised to the nail is also leaning against it.) The pilaster to the right of the plumb-line leans off about 7 inches in 24 ft.

The motive of setting the window obliquely is obviously to avoid an over-conspicuous prominence of the primary leans, or to avoid such a contrast between perpendicular and leaning lines as would lead to the detection of the latter. Similar arrangements have been found in other French churches. The system of sustaining a parallelism of leans at all points where a perpendicular would conflict with them is carried out to a marvellous extent in St. Mark's at Venice, as shown by the plumbs which were published in Memoir No. 2.

The Brooklyn Museum exhibit includes two photographs for the left aisle of St. Loup.

The general system of the aisle arrangements in this church

*The Museum exhibit includes an aisle view from St. Thomas at Strassburg, in which the leaning pilaster faces a chapel wall of great depth.



FIG. 5. THE CHOIR, ST. LOUP, CHALONS.



FIG. 6. THE RIGHT AISLE, ST. LOUP, CHALONS.



FIG. 7. THE LEFT AISLE, ST. ALPIN, CHALONS.

and the character of the constructive evidence which these arrangements offer is shown by the following illustration from another church in Chalons.

Fig. 7.—Left aisle of the early Gothic church of St. Alpin at Chalons. The plumb-line which hangs on the second pilaster records a lean of 4 inches in a height of 14 ft. This photograph is a very valuable one for constructive demonstration at a distance from the original monuments. By virtue of the small dimensions of the aisle the deflection is more than usually prominent, in relation to the size of the picture. The self-set task of furnishing obvious demonstrations within the limits of 5 x 7 prints, and even smaller reproductions, is a very difficult one when the average dimensions of the French cathedrals and the really inconspicuous character of these deflections are considered, and it is not often that such convincing pictures can be obtained, although the facts as observed in the churches themselves are frequently quite as convincing.

The picture is especially successful because the slant of the first pilaster happens to contrast in a very distinct manner with the adjacent perpendicular of the side of the photograph.

The fact that the masonry courses are all visibly horizontal is especially to be considered. If thrust or settlement had produced this deflection the masonry courses would dip downward to the left. The same horizontal arrangement of masonry courses is also found in the aisles of St. Loup, which otherwise resemble this view. The Museum exhibit includes a similar photograph for the right aisle of St. Alpin, and two photographs for the nave. The latter has a more delicate and less perceptible widening, but it is well defined notwithstanding. The divergence in the nave is connected with a bend.

Fig. 7 is obviously conclusive as to questions of settlement or thrust. There are three Italian churches from which constructive evidence of the same character has been published, i. e., churches in which there are chapel walls on the exterior side of each side aisle, which are opposed to the line of thrust, and of such depth as to make accidental movement of the masonry impossible. These churches are S. Ambrogio and S. Eustorgio, Milan, and S. Michele, Pavia, as previously mentioned.

Fig. 8.—The left aisle of Notre Dame, at Chalons. The plumb-line records an outward lean of $3\frac{1}{4}$ inches in 15 ft. The masonry courses of the pilaster in its upper portion and the fillet under the capital are inclined downward to the left. If the wall had gone over accidentally they would incline downward to the right.

The great importance of this photograph lies in its illustration of a vertical curvature, which is uniform in all the pilasters. In face



FIG. 8. THE LEFT AISLE OF NOTRE DAME AT CHALONS. LOOKING TOWARD THE FAÇADE.

of this picture it is wholly impossible to deny that a vertical curvature analogous to the entasis and directly related to it was employed in mediæval Europe. A similar observation and a similar photograph have been made in Fiesole Cathedral. Other instances of the mediæval entasis have been quoted in Vol. VII., No. 1, of the Architectural Record. (One of these instances, quoted in 1897, must be withdrawn, viz., S. Miniato, at Florence. The observation was made in 1901 that the pillars of San Miniato are covered with a very deceptive Renaissance stucco, in imitation of green marble, although the church itself is early Romanesque.)

The illustration from Notre Dame at Chalons shows the importance of wide observations and of many of them. In face of this picture the hypothesis that the vertical curves in the naves of French Gothic cathedrals are derived from the classic entasis by way of Romanesque classic survivals or copies seems highly attractive. Much new light on this subject may be expected from a wider examination of the French Romanesque. The observations of 1903 in France were almost wholly confined to Gothic buildings.

The nave of Notre Dame at Chalons shows delicate vertical bends.* The pilasters of the right aisle have the vertical curves, but do not incline outward. This is the only church so far found in Europe in which constructive leans are confined to one aisle. The explanation would naturally be found in a change of builders. The use of the widening in the aisles is not frequent, and it is clear that there were many builders who did not employ it in the aisles.

Fig. 9.—The Church of St. Quentin, from the choir. This photograph illustrates the most pronounced case of vertical curvature which has so far been found in Europe. At the piers on the choir side of the crossing the widening is 2 ft. (Width at the pavement 34 ft.) It is quite evident that the vaulting would have collapsed if such an outward spread had been due to accidental causes.

According to accounts given by the Sacristan, the recently deceased architect in charge of this church (M. Benard), who had presided over its repairs for thirty-six years, was well acquainted with the facts as being constructive, and attributed them to the *hardiesse* of the mediæval builders.

If any additional argument were needed it would be found in the arrangements connected with the system of vertical curves in the transepts, which intersects the system of the nave. This intersection is shown by the following illustrations.

Figs. 10, 11 (Church of St. Quentin), represent two adjacent

*This statement corrects the one recently made regarding the nave of this church in Museum Memoir No. 4.



FIG. 9. THE CHURCH OF ST. QUENTIN. FROM THE CHOIR.

sides of the pier at the southwest intersection of the nave and transept. This pier is the farther pier on the left, at the transept, as seen in Fig. 9. The face which fronts the spectator in Fig. 9 is the eastern side of this pier, and this is also shown by Fig. 10. Fig. 11 shows the south side of the same pier as having curves which intersect at right angles those of Fig. 10. The curves of Fig. 11 belong to the transept system, which is transverse to that of the nave. The same arrangement of intersecting systems of bends has been mentioned as existing in St. Mark's, at Venice; in St. Mary Diaconissa, Constantinople, and in the Church of the Monastery of the Chorah at Constantinople.

It is obvious that these intersecting curves imply very intricate masonry cutting in the stones of the pier. The facts are uniform in all four piers at the crossing of nave and transept.

It is inconceivable that any builder or mason could inspect these intersecting curves as they are seen in this church and attribute them to thrust. If the facts represented by these two photographs are perfectly understood, and if they are understood to be typical for all four piers at the crossing, it is not easy to understand how any architect can question the existence of constructive curves at St. Quentin. The facts are, however, already sufficiently apparent in Fig. 9. The curves and the widening are bound up together in this church. Both must be accepted or both must be rejected, and the only alternative here is to hold that a vaulting can spread 4½ ft. without collapsing.

The use of tie-rods may be noted in the nave (Fig. 9). I was not advised whether these were introduced before the time of M. Benard. The strengthening of the church by these rods was probably advisable, and it is extremely natural, in view of the great divergence of the nave piers, that this expedient should have been suggested at some time later than the original construction, possibly under the recent architect in charge.

Fig. 12 introduces another interesting feature of the Church of St. Quentin. The openings from the transept into the aisles are also constructed with a widening. Thus the nave piers bend slightly into the nave before they curve away from it higher up. This is seen in Fig. 9 as well as in Fig. 12.

On the other hand, Fig. 12 shows the vaulting-shaft on the left as bending slightly toward the perpendicular above the widening. The Brooklyn Museum exhibit includes four pictures in which these facts are found to be uniform. The return curve of the vaulting-shaft is more clearly seen in these other pictures than in the one here published. In this picture a portion of the vaulting-shaft is concealed.

A widening of the aisles in two directions is unusual. In the

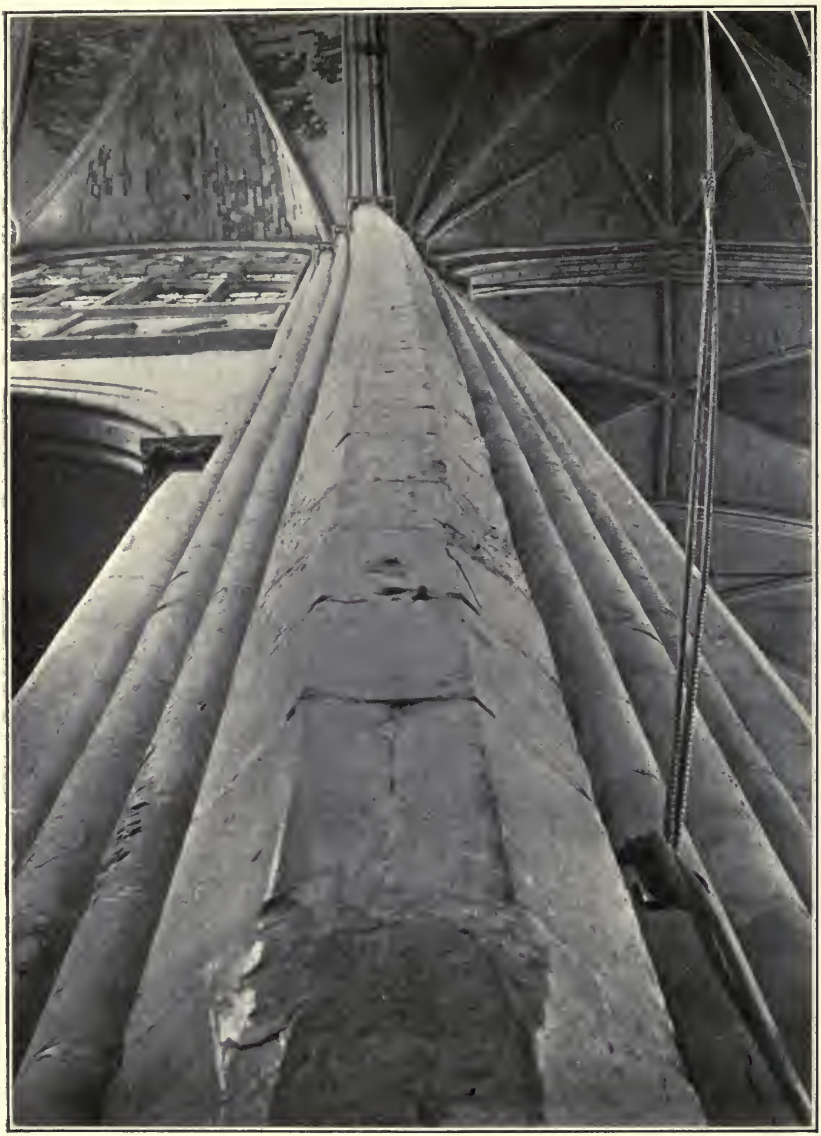


FIG. 10. THE CHURCH OF ST. QUENTIN. SOUTH-WEST CROSSING PIER, EAST SIDE, LOOKING UP THE PIER FROM THE GROUND TO THE ROOF.

(To see this picture correctly, hold it flat above the eyes and view it looking upwards.)



FIG. 11. THE CHURCH OF ST. QUENTIN. SOUTH-WEST CROSSING PIER, SOUTH SIDE, LOOKING UP.

(To see this picture correctly, hold it flat above the eyes and view it looking upwards.)



FIG. 12. THE CHURCH OF ST. QUENTIN, RIGHT AISLE. FROM THE CHOIR, LOOKING THROUGH THE TRANSEPT.

Italian churches which have been quoted for the aisle widening, the leans are only found on the exterior side, and this is also true of St. Loup and St. Alpin, at Chalons.

As regards the western portion of the Church of St. Quentin, it is in the opening from the transepts into the aisles rather than in the aisles themselves that the widening is found, but in the choir aisles the piers lean apart on both sides of the aisle. This is the explanation of the extraordinary and abrupt bends which may be noticed in Fig. 9 as existing in the choir. They are due to the fact that the piers lean into the choir as far as the capitals, whereas the vaulting-shafts and walls lean out above that point. The entire wall of the choir is twisted sideways, on both sides, in order to obtain the desired end.

It is a very frequent arrangement in French cathedrals that the widening is inconspicuous or wholly absent at the façade entrance, and that it gradually increases toward the choir. This fact may be observed in Fig. 9.

Conclusion.

The continuation of this paper in the next issue of the Architectural Record will describe other French churches and cathedrals having similar refinements. The general result of the Brooklyn Institute observations of 1903 may, however, be briefly stated here. Twenty-seven localities were visited, including Constantinople, Vienna, Strassburg, and twenty-four towns in France. In these twenty-seven localities, thirty-one churches and cathedrals were found to exhibit vertical bends and curves or vertical widening. In most cases the two arrangements were combined.

It is believed that all the instances described and illustrated in this paper carry their own internal evidence of constructive intention to the eye of the expert, even in the limited dimensions necessary in these cuts. Not less remarkable constructive evidence will be published for other French cathedrals in the continuation of these papers.

It could hardly be demanded by the most exacting critic that impregnable constructive evidence should be furnished for every building cited or illustrated. From the standpoint of historic probability and historic criticism it would be incredible that even one case of architectural refinement could be demonstrated to have existed in the Middle Ages as an isolated example. The existence of other cases would be presumed, as a matter of course, even if they had not been seen. Why, then, be over-exacting of constructive proof for every case which has been seen? One instance absolutely proven would involve the certainty that a

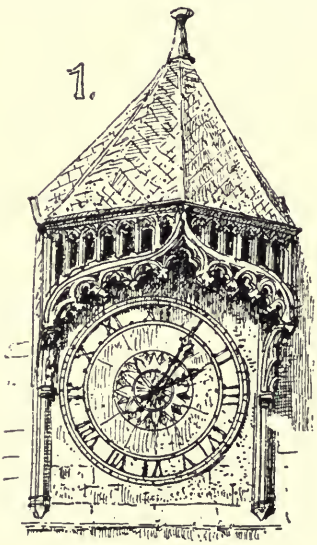
traditional practice of such refinements must have existed. And this is the only question which is at stake in this investigation.

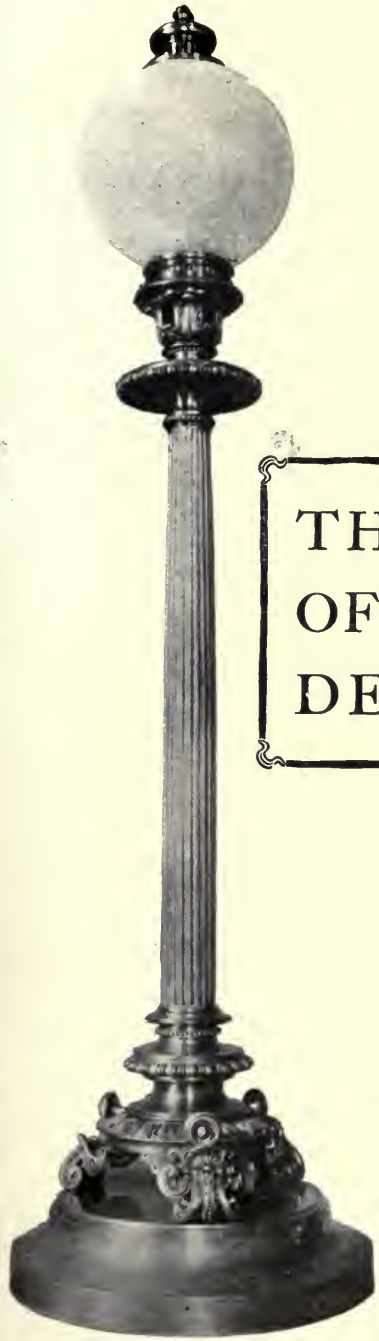
That deformations due to accidental causes are found in many mediæval buildings is beyond dispute, but a vague insistence on the existence of such accidental deformations will hardly be considered as overbalancing or obscuring the evidence now being presented.

Wm. H. Goodyear.

(To be continued.)

On p. 135, 25th line, read 2 ft. in place of 4½ ft.





THE FUTURE OF METALS IN DECORATION

LAMP IN THE MEMORIAL LIBRARY, RIDGEFIELD, CONN., EXECUTED BY THE STERLING BRONZE CO.

THE FUTURE OF METALS IN DECORATION.

III.

IRON is the material which has conquered our cities and in time will surely conquer the country, as the forests are destroyed for paper as well as the thousand and one other objects which have to be made of wood. It will then be cheaper to build barns and farm houses of iron in the United States, as it has always been in some parts of Australia. Very little has been done to study the capa-



OLD WROUGHT-IRON WORK, No. 27 EAST 20TH STREET, NEW YORK CITY.

bilities of iron either from the æsthetic side or the side of comfort. One may say that the field is still virgin, waiting for the inventive mind to subdue the metal to the finer uses of man. What we now have in the cities is not calculated to raise one's respect for anything but the mathematical mind that calculates weight and the resisting power of iron and masonry, also the strain of wind-pressure on enormous walls and on giddy miles of iron bridgework.

And even so, we have not absolutely guarded our iron buildings



EXAMPLE OF WROUGHT-IRON WORK.

Executed by John Williams.



ELEVATOR ENCLOSURE.

Executed by Winslow Bros. Co.



BRONZE DOORS—FIRST NATIONAL BANK OF SCRANTON, PA.
Executed by the Gorham Manufacturing Cc.



BRONZE STAIRWAY IN THE CHICAGO PUBLIC LIBRARY.

Executed by the Chicago Ornamental Iron Works.



BRONZE CARTOUCHE—HOUSE OF SENATOR CLARKE.

Executed by the Henry-Bonnard Co.

Lord & Hewlett,
Washington Hull,
Kenneth Murchison
} Architects.



LAMP, HOTEL BELLEVUE, BOSTON.
Executed by the Hecla Iron Works.

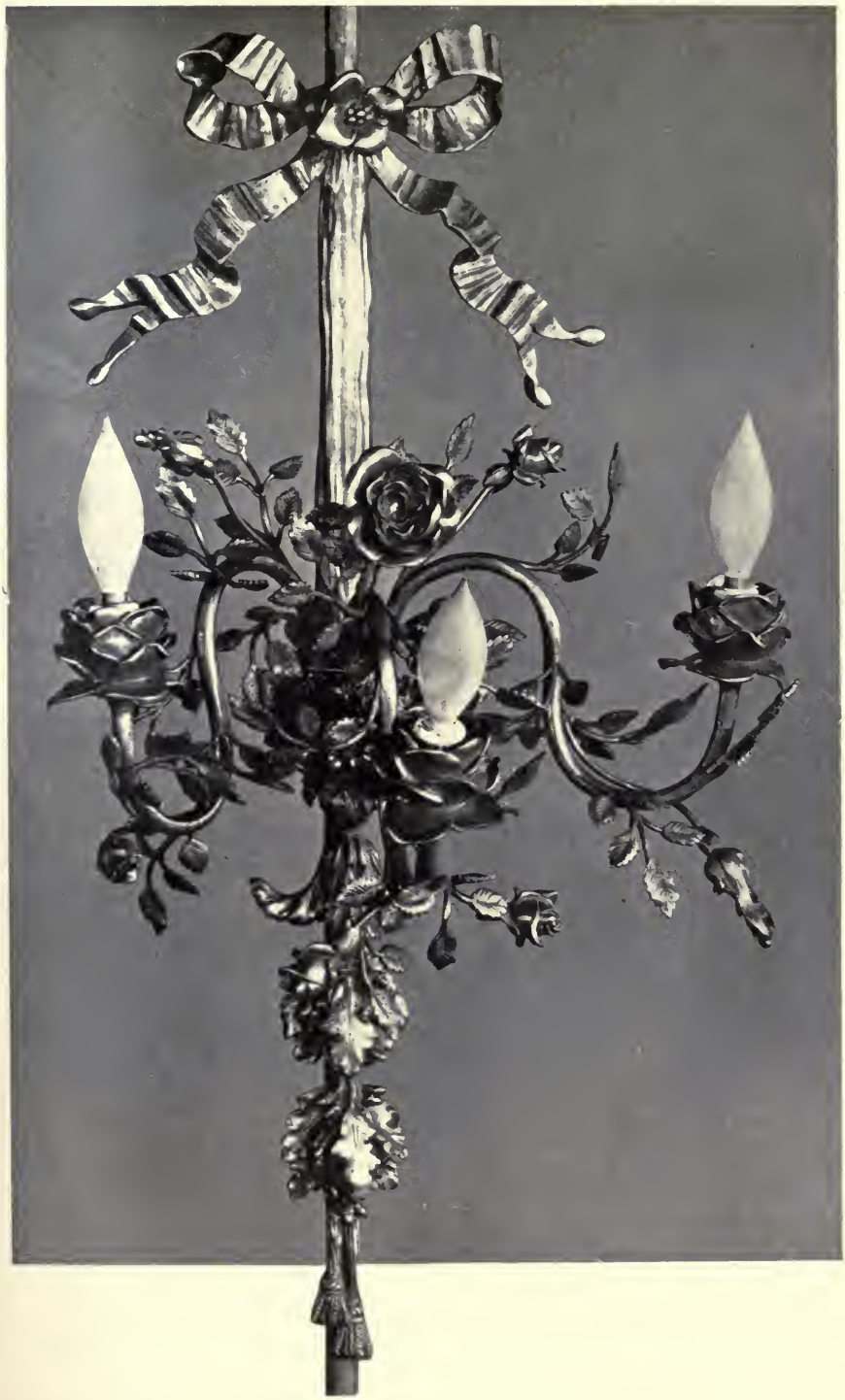


BRONZE LAMP, U. S. MINT, PHILADELPHIA, PA.

By The Flour City Ornamental Iron Works Jas. Knox Taylor, Supervising Architect.



LANTERN IN THE HOUSE OF RICHARD R. QUAY, SEWICKLEY, PA.
Executed by the Sterling Bronze Co.



WROUGHT-IRON ELECTROLIER.
Executed by the Mitchell Vance Co.



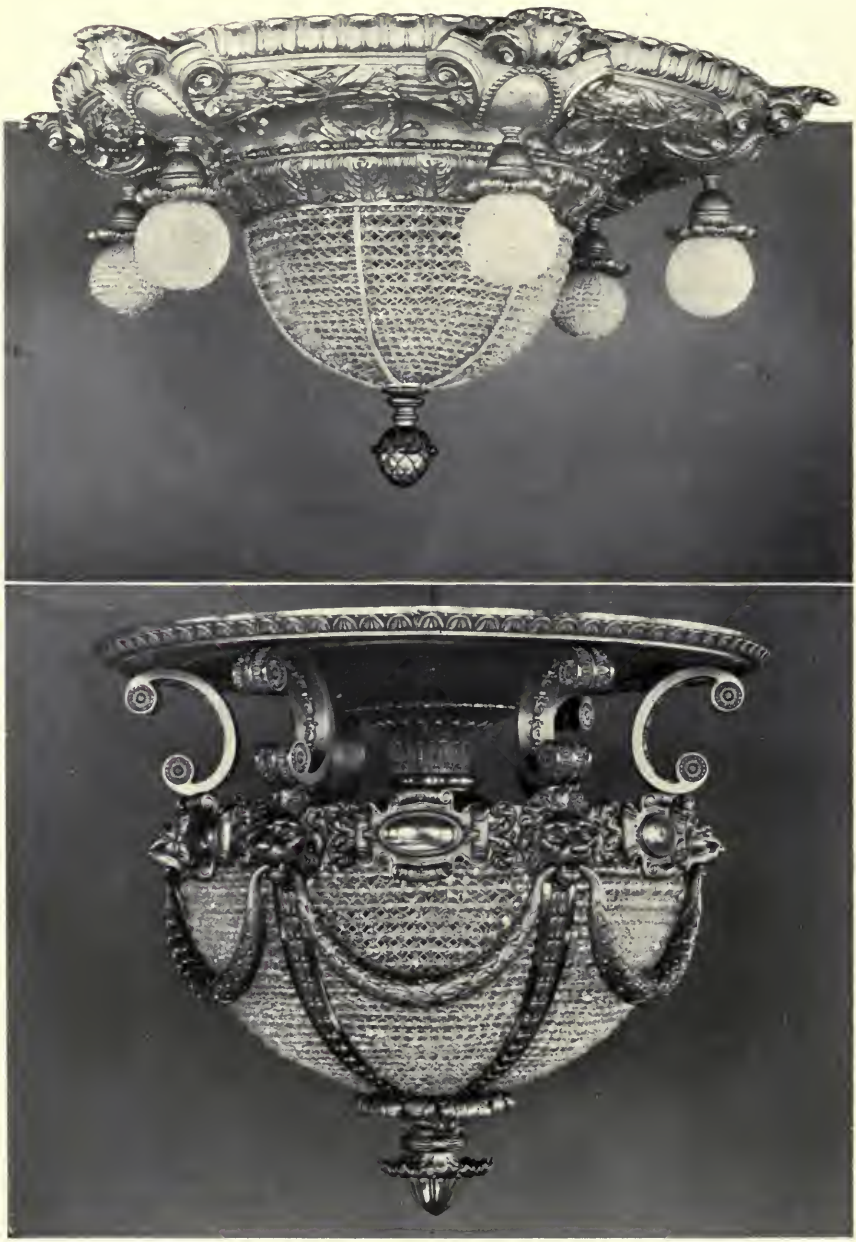
BRONZE CHANDELIER.
Executed by the Mitchell Vance Co.

from corrosion. Even when carefully protected by earth or masonry or paint from the atmosphere, which otherwise will make short work of iron pillar and beam and bracket, the metal is not proof against the insidious attack of electricity, which slowly but surely destroys iron piping and must affect the great buildings which are penetrated in all directions by electric wires and affected by currents that escape from the heavy charges required to move our street cars. This, however, is not the place to consider dangers of electrolysis or calculate how soon our



BRONZE ELECTROLIER.
Executed by the Mitchell Vance Co.

enormously tall and heavy office buildings will last without expensive repairs. The greater number of them are so devoid of grace that their disappearance need not cause in anticipation much sorrow to anyone save him who will be injured in pocket thereby. What is of more immediate importance is this:



BRONZE ELECTROLIERS.

Executed by the Mitchell Vance Co.



BALCONY RAILING—THE UNIVERSITY CLUB, NEW YORK CITY.

Executed by the Hecla Iron Works. McKim, Mead & White, Architects.



BRONZE MEMORIAL.

Executed by Chicago Ornamental Iron Works. Designed by Richard E. Smith.

A vast amount of money is spent in the fitting up of elevator shafts, offices and halls with iron and bronzework. No expense is stinted and yet the result is far from satisfactory. All we get is an impression of brute expenditure of money. If an architect can tell his client that the ironwork must be acknowledged artistic because this portion is copied from a certain model in Europe, and that portion from another, the client is proud, not remembering that for such sums as he is paying a fresh design from a living artist might be had. It is also in the interest of speed that the architect works by short cuts. The haste with which city buildings are erected causes many of the sins against beauty we see about us. It is impossible to finish such enormous structures with loving care in the period set for their completion. Instead of leaving certain parts for later on, when there is time to have designs made and these designs carried out by the most competent workers in iron and bronze, everything must be in place at a given date for good or for evil. In such conditions it is no wonder that architects set a dozen draftsmen to work getting designs from any available quarter, with small regard to the appropriateness of the models selected or the source from which they are conveyed. The impression of lavishness in decorations which first meets one gives way to doubt and one grieves to recognize the costliness of the

work on perceiving that the sums expended have gone into channels which are of no use in fostering American art.

Along with the steady increase of metal in construction there must come a more thoroughgoing use of metal in decoration. The new building of the Knickerbocker Trust Co., on Fifth avenue, New York City, offers an example of metallic sheathing on jambs and window frames. There is a liberal use of metal treated so as to appear like bronze already oxidized to a fine green tone in the decorative grillage over the large windows. The most striking example of the employment of bronze is afforded by Senator Clark's house, where the dormer windows and the corners of the roof are big single castings of bronze. We have suffered in this country from the false cornices and false eaves made of thin sheet metal painted to represent brownstone, but here we have bronze used as bronze and employed for some of the most prominent parts of the edifice, corresponding with bronze doors and iron entrance gates, and like them executed with the greatest care from models of full size. So far as the writer is aware this is the first time that the metal has been used on such a scale for the exterior of a mansion. It seems to indicate that as time goes on we shall have bronze employed more and more in the ornate portions of buildings where carved stone or terra cotta has been preferred. For the persistence of iron as the material for the skeleton of great buildings must entail the spread of metal work to the rest of the structure, as not only appropriate but more enduring and cheaper in the end. As to the artistic treatment of bronze, iron and other metals, on that side there is no trouble. What has alienated people of taste from metallic construction has been the unnecessary ugliness of forms and the clumsy way in which the new material has been handled by architects. Neither the Eiffel Tower nor the Machinery Palace at Paris, although an endeavor was made to produce beautiful results, was successful enough in that respect to satisfy those who demand a good deal in the way of art.

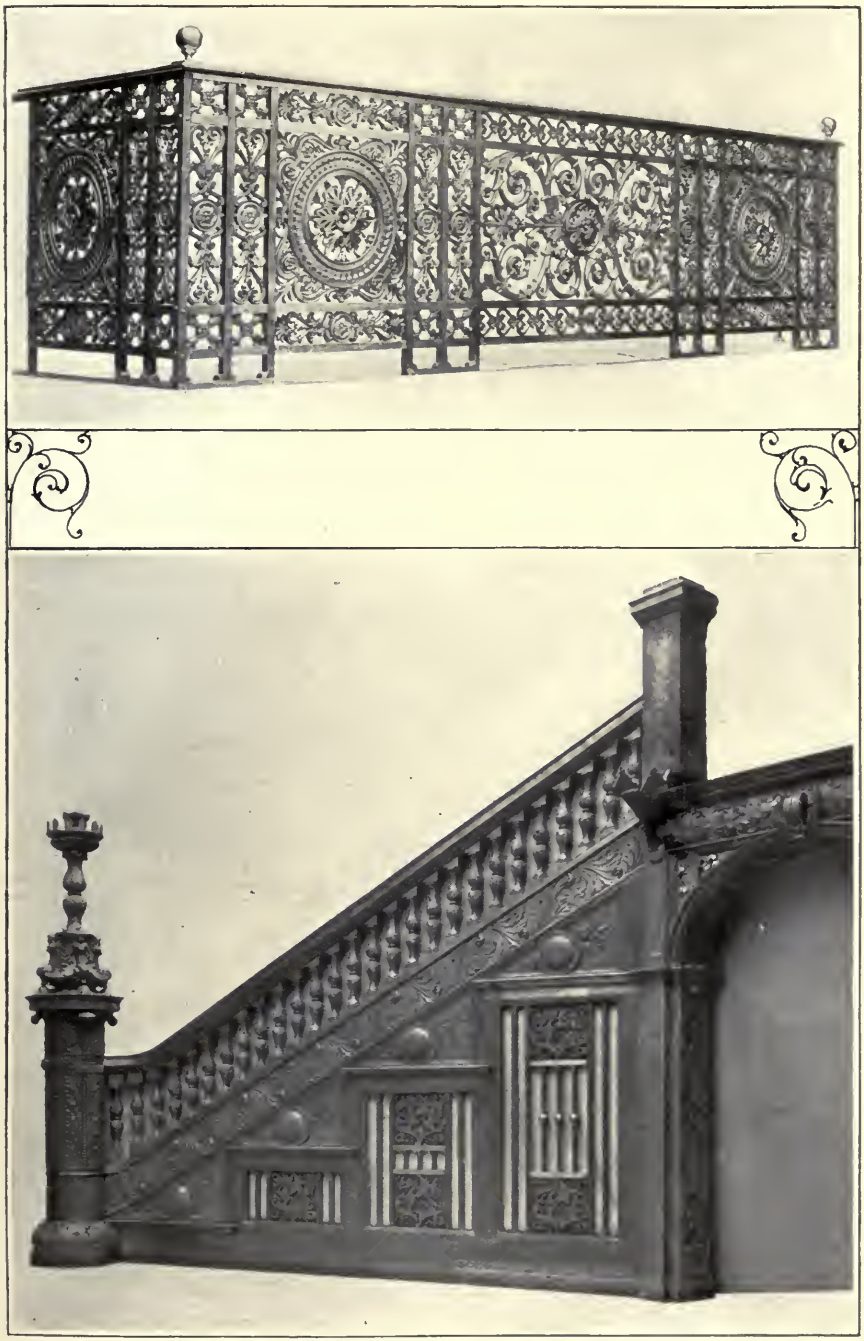
When it has been thoroughly understood that metal in decorative work is not to be employed for cheapness, and that it is as necessary to engage an artist to design metallic decorations for an interior as for a monument, then we may see a much wider field open to the craftsman in brass, bronze, iron and costlier metals—friezes in galleries, floors and ceilings, wainscots and furniture—just as we find to be already the case to a large extent in museums, libraries and public buildings where everything is done to minimize flammable materials. When one examines the results of an artist's labors in small pieces, entirely or in part fashioned from metal, such as the work of the old Bavarian forge masters and

the cabinetmakers in France during the reigns of Louis XIV. and Louis XV., one realizes that metals can be as readily made to serve the purposes of usefulness and beauty as any other material. They are not meant to imitate stone or terra cotta or wood, although for doing that there is abundant precedent in the past. But they can be managed in their own several ways so as to effect as fine results, produce as completely a satisfaction of the æsthetic sense and add the extra touch of durability to their value as works of art. It would not be unreasonable to make a forecast of the future to the effect that the present century will see a return, on a much grander scale, to something like those interiors decorated in precious and semi-precious metals which we find described by the early poets of Europe.

Charles de Kay.



BRONZE STAIR RAILING IN FLAGLER RESIDENCE, PALM BEACH.
Executed by William H. Jackson Co. Carrère & Hastings, Architects.



(1) CAST-IRON ELECTRO-PLATED BALCONY IN BOSTON PUBLIC LIBRARY, BOSTON, MASS. McKim, Mead & White, Architects.

(2) ALUMINUM BRONZE STAIRCASE, COLORADO STATE HOUSE, DENVER, COL. Executed by The Snead & Co. Iron Works.



THE NEW THOMAS MUSIC HALL.

Chicago, Ills. D. H. Burnham & Co., Architects.

THE NEW THOMAS MUSIC HALL.

Editor Architectural Record:

It was my destiny to be in Chicago in April, 1904, and it was during the few days of my stay that the drawings for the new Thomas Music Hall were taking their final shape. The very energetic and enthusiastic services of a few managers had brought the business to the front in a way surprising even to the people of Chicago. And yet Chicago (which ought to be called, from now on, Thomaston) has for its chief glory, as you and I understand glory, the willing welcome which the town has given to that unmatched orchestra and to the man who has created and developed it.

Now, the triumphant establishment of that orchestra and its series of concerts is marked by the completion of the plans and the satisfactory filling of the subscription list. The building will be built; so much seems to be assured. That it will be ideally good in its plan, in its acoustic properties, in its fitness for the perfect rendering of great music, is apparently as certain as anything human can be. All that care on the part of Theodore Thomas and his allies can do has been done and is still in the way of being done in the preparation of the interior. Every curve and every straight line, each flat and each hollow surface have been considered and reconsidered; and while we have not yet the completed drawings of the interior, that is merely because no amount of pains and time have been begrudged, and no part of the interior is to be pronounced complete in scheme until the same can be said of every other detail in the whole complicated lay-out of the interior surface. If you want your Music Hall to respond like the shell of a violin to every note; if you ask that it shall be resonant enough and not too resonant; if you demand that the material of every part and the exact shape given to that material is settled by a long process of elimination and the rejection of every conceivable second-best, you will find that not weeks, but months of time—months stretching into years—will be consumed before your Music Hall stands perfected, even on paper.

There is still another part of the building to be considered, and that part, now, may be called complete in its preparation. Although you cannot publish at once the drawings of the interior in such fulness that the new Music Hall will stand out plain on paper, as it will be by and by in brick and iron, yet the front on Michigan avenue may be understood. The building of the hall for musicians and hearers has, of course, nothing piled upon it. It is roofed with its own roof—no ten-story building, nor the heavy substruc-

ture for it, is to interfere with the faultless interior which Mr. Thomas and his friends are hoping to give to Chicago. But between the Music Hall proper and the street-line there is a space which, on the ground floor, will be devoted to ticket offices and entrances to the hall itself; which, on the first upper floor, will be occupied by a "foyer" and such-like reception rooms and rooms of resort; which, on all the stories above the great foyer, will be occupied by offices one row deep, fronting on Michigan avenue and the Lake, with a corridor running past them on the western side. That is all, and the picture which you will publish with these few words of introduction shows the façade of that shallow, thin office building—a piece of real estate investment, of course, the income of which, it is hoped, will help the Music Hall to prosper as a permanent institution.

The front had been studied many times over before I first entered Mr. Burnham's office, and what I saw there, the same elevation which is now in hand, was the result of very considerable preparation and of many rejected schemes. It is one of those frequent cases in which the simple and obvious, and therefore probably the best scheme, was slow to evolve itself. A good friend and a truly critical judge of architecture calls this front commonplace, and I am compelled to recognize some ground for such an opinion; and yet my own feeling about the front is what it was two months ago, and I hope to give your readers a sufficient explanation of my admiration for the design.

When I was a young man there was a term much in favor among the builder-architects, the contractor-architects, the real-estate-agent-architects and the like—a term which was intended by them to be opprobrious, as applied to those few rivals in the profession who were supposed to be more careful than was thought reasonable about the beauty and fitness of their designs. If a man spent much time over his designs and was exacting about his details, and if, when the building had begun, he insisted upon the precise carrying out by the contractor of the terms of his rather elaborate and minute specifications, he became unpopular, he was a marked man, he was a person whom the builders were shy of, and he was called "a fancy architect." Now, Mr. Burnham is not a fancy architect. More than any other man of the time he has apparently made it his business to ascertain just what the capitalist or the company will stand, in the way of exterior effect, and just what deference is to be paid to artistic considerations. So with the interior—Mr. Burnham's office is not one of those which force marble dadoes and mosaic floors upon its employers. In like manner, no one would dream of going to the Burnham *atelier* in the new Railway Exchange Building, to look for delicate designing,

which might involve long-continued and expensive workmanship to put into permanent shape.

And so the front which has finally come into being, at least on paper, is to be noted as probably as economical a piece of building, as rational a system of openings and solids, as the wish of man could devise. We are to take it for what it is—not as a costly work of art, created as a work of art and admittedly involving much expenditure of time and money as a work of art—we are to take it as an entirely reasonable design with nothing in it which could well be spared. A decent and somewhat elegant exterior was thought necessary, fronting on the most attractive avenue in the great town, and this it has been the architect's purpose and his pleasure to supply; but no one is to look to any front built under these conditions as a model of thoughtful designing.

So much premised, let us now see what there is really characteristic in the front before us. Remember that there is no architectural success like that design which grows, or seems to grow, out of the absolute requirements of the situation. The requirements of the present situation are these: a broad and ample hall for entrance and exit, which need not be high "between timbers," but which would be, almost of necessity, an extension inward of the sidewalk—the footway of Michigan avenue; above this, a grand story indeed, a *piano nobile* if there ever was one, an overwhelmingly important story of lofty rooms; and above this again five horizontal layers of small offices to be rented to the first comer. Those are the conditions.

Now see how the well-advised designers went at their work. They treated together the low ground story and the lofty first story above, as one architectural basement, and to emphasize this unity they carried the jambs of the great arched windows straight down vertically, plumb to the sidewalk, so that each one of these three huge openings looks as if it were thirty feet high to the crown of the arch. There is no pretense about it. Most happily there was avoided here that ugly trick of making two stories of windows look like one window. The stories are separate and their division emphasized by flat arches on the wall surface; arches flush with the outer face of the building and not recessed between jambs, and above these are balconies with balustraded parapets; and yet the architectural treatment is such that the dignity of the three big arches is increased many-fold by this apparent extension downward of their vertical lines. This arcade of three immense arches is flanked by two very well composed classical windows with frontons, which windows are on the axes of two large openings in the ground floor, which may, perhaps,

be show windows of rooms for rent as shops. The five stories of windows above are, as they have need to be, all of the same size—for why should one office have bigger windows or different shaped windows from another? Logic says that they should be alike, and somehow designs made according to logic are very apt to be effective, very apt indeed to appeal to something in the human mind which is not altogether artistic feeling, but which is closely related thereunto. These windows are on the vertical axes of the openings below, and also, as far as practicable, on the axes of the piers which separate them; so much is called for by the exigencies of a semi-classical system of design and also by the rules of the more simple and obvious building of masonry walls. You may have a front made up of false bearings (structure in *porte à faux*) and a very good thing may be produced by that picturesque way of dealing with your front—but you will have trouble with it both in its design and its stability.

Further than this it is hardly necessary to go. The building is to be of brick with speckled, light gray granite much paler than the brick, and the design, once taken as classical in its main characteristics, has become an Old Colonial front without anyone's expecting it, as I think. It does not seem that we often meet in our streets large front walls, just as wide as they are high and pierced, as need is, with a multiplicity of windows, in which the general result has been so good. The front is most attractive to me, and I am the more glad of it that whenever one goes to Chicago to hear the best music that there is to be heard he will have a comely front to meet him as he approaches the temple of his delight.

Sincerely yours,

Russell Sturgis.



PORTRAIT BUST BY PIERRE ROCHE.



BUST OF HUYSMANS BY PIERRE ROCHE.

The
Architectural Record.

VOL XVI. SEPTEMBER, 1904. NO. 3

A PICTURESQUE AMERICAN SUBURB.

MUCH has been written of Lawrence Park in the twelve years of its existence, and of well-known people living there, and many views of the place have been published. Justly named a park, though not a formal one, its chief charm being its picturesqueness, it is within less than an hour's ride from the center of New York, just beyond the northern boundary of that "greater" city; and transportation, from the town to the suburb, is so quickly made that the traveler is startled and pleased with the sudden contrasts of the two. The part is in its natural state, except for the houses that have sprung up and the roads that wind through its trees.

From the station of Bronxville a few steps lead into the park. There are no smart traps wheeling obtrusively at the depot, or vistas through tree-lined roads, or hedge-bordered lawns with varicolored floral designs and artificial fountains. All is simplicity here. To the left stands the Lawrence Arcade, with clock turret and many gables. Irregular and picturesque, the building, with its stone pillars and plaster walls, is in appearance very English. This spirit of rural England is met repeatedly in the details of the park, although the general effect is entirely lacking in the pastoral quality common to English villages. The Arcade contains the town's shops, telephone station, livery, and local real estate office. The many angles of its sky line, from every point of view, produce a pleasing effect not attained by any other style of roof on a building so low and so irregular in plan. Many vertical lines, obtained by the repetition of stone piers, produce an effect of greater height and length than the building actually possesses. Altogether, it is an interesting little structure, and naturally first attracts the attention of the visitor and draws him in the direction opposite to that in which he should go to enter the park by the gate proper. It is

Copyright, 1904, by "Architectural Record Company." All rights reserved.
Entered May 22, 1902, as second-class matter, Post Office at New York, N. Y., Act of Congress, of March 3d, 1879.



RESIDENCE OF PROF. KAVANAGH.
Entrance to Lawrence Park.

of no importance, however, which road is chosen, for either leads up the hill into the park, which is included, after all, within a very small compass.

At the gateway stands what is called the lodge, though it is the dwelling of one of the residents of the park—Professor F. Kavanagh. Good proportions, simplicity of line, absence of useless detail, and honesty of material, make this cottage worthy of approval in passing. Its boxlike shape, gable roof, twin dormers, square chimney, and porch, are so logically put together, so honestly used, that the result is happy and convincing.

The entrance to the park is marked only by two stone pedestals, one on either side of the road, of a design simple and appropriate.



THE CASINO, LAWRENCE PARK.
Bronxville, N. Y. William A. Bates, Architect.

Beyond are trees, trees everywhere, and hills—the park itself is but a hill—and over all hangs an air of peace, seclusion and tranquility.



THE WILDER HOUSE.
Lawrence Park, Bronxville, N. Y. W. R. Wilder, Architect.

Entering into every view of Lawrence Park are houses, or details of houses—picturesque bits seen half hidden by the trees or in silhouette against the sky. What could be more charming than the French-Norman round-tower of Major Robinson's house, built on a steep incline, with its conical roof and encircling balcony? Sunlight, coming through the oaks, strikes its plastered walls and makes it stand out in bold relief. What could be more striking than the double composition of the great rear gables of the Smedley house? Their vertical lines, massive stone basements, and steep roofs, viewed in short perspective, and the rapid sloping of



RESIDENCE OF FLOYD FERRIS.
Lawrence Park, Bronxville, N. Y. William A. Bates, Architect.



RESIDENCE OF W. H. LOW.

Lawrence Park, Bronxville, N. Y. William A. Bates, Architect.

the ground, give them an exaggerated scale and sense of importance that is impressive. Splendid old trees add to the effect, and sunlight filtering through, mottles the plastered walls of the upper stories and brightens what would otherwise be a sombre picture. What more picturesque than the Lombard residence, the Chateau? This house, perhaps the largest in the park, has a central location, and, though not of the highest type, or the most beautiful, is one of the principal buildings of the place. In style it is a mixture of Norman-French and that Renaissance style peculiar to England, called Elizabethan. Entirely different is the spirit of Gray Arches, the home of the Rev. R. Hayward, and once that of Kate Douglas Wiggin. Resting on the top of a mass of rock, its heavy stone arches rise naturally from, and seem to be part of, the rock beneath. It stands out against the sky, overlooking a road that leads out of the park, and from its porch the most extended view is to be had, as it is not buried in the trees. A gable roof, resting on the arches of the porch, with two large dormers, form the features of the front. Perched in the air, it is a breezy bit of picturesqueness, a happy inspiration of its architect. The list of charming views is almost endless; much time can be spent in wandering through the park enjoying them.

One fault that may be found from the standpoint of good arrangement is the proximity of some of the houses; they intrude upon one another. Large houses need extensive surroundings to make satisfactory pictures; small ones require less. Some views that would otherwise be perfect are somewhat marred by the accidental intrusion of inharmonious details. This is, of course, unavoidable under the conditions, and may be condoned on the ground that the houses form a colony. A rear view of the Ward Leonard house is beautiful from a central point of sight, but when seen at an angle, includes discordant details, and appears cramped. It is, when rightly viewed, one of the best pictures of the park. The design, color, and bit of garden combined produce an Italian effect, intentional or not, but the cottage neighbor on the left and Elizabethan companion in the background are jarring elements.

Here, where the Leonard and Smedley houses stand, is to be found the nearest approach to formality in the park, due to the absence of trees on the well-trimmed lawn of the Lawrence place and the porte-cochère of the Smedley house. Then, too, the lawn of the Stedman place opposite, almost bare of foliage, and the stately Colonial front, add to this formal appearance of the spot. Turning a curve, one beholds a view through the trees that ends



RESIDENCE OF MRS. F. J. MEIGS.

Lawrence Park, Bronxville, N. Y. William A. Bates, Architect.



THE H. WARD LEONARD HOUSE.
Lawrence Park. Rear View.

in a thick grove beyond the "Chateau." This stretch has more resemblance to a street than any other, having on either side a row of houses that possesses some degree of regularity. The roads are all named, among them being Valley Road, Wellington Circle, and Prescott, Lookout, Sunset, Paradise, Park, Chestnut and Tanglewylde Avenues. No attempt has been made to map them out in a regular manner, but they are well made, and those under way promise to be equally good when finished.

The park may indeed be termed a colony. The homes of artists and men of letters, as well as architects, are here, among them being Edmund Clarence Stedman, William T. Smedley, William Henry Howe, W. S. Howard, Will Low, Tudor Jenks, and W. W. Kent. The place has an atmosphere of good taste. It is impossible not to appreciate the thoughtfulness and taste shown in locating and building the houses, and the ever-harmonizing effects of Nature. There is no ostentation or vulgarity. The houses belong where they are placed, as if they had grown there and were content to remain, and the general effect is tranquil refinement. Yet they are not monotonous; they have variety of style, material and color, but without any competition of effect. This may be due to the



RESIDENCE OF W. S. HOWARD.
Lawrence Park, Jardine, Kent & Jardine, Architects.

fact that they are almost entirely the work of one architect or of associated architects. The impression that the park is a colony is given in some measure by the uniform kind of buildings, restrictions limiting them to dwellings, while stables, boarding-houses, factories, as well as fences, are debarred from the park's limits. It may also be said that there is a prevailing type of dwelling, the English timber frame house, though the so-called free Colonial, the Norman-French, and the shingle cottage styles are represented. Of the first, the Elizabethan house of William T. Smedley, the artist, is perhaps the best specimen, though its neigh-



RESIDENCE OF A. STRATTON.
Lawrence Park, Bronxville, N. Y. William A. Bates, Architect.

bor and companion, that of the author, W. S. Howard, is a beautiful structure.

The problems that confront architects here are free from the restrictions of city-dwelling planning. The difficulty of providing light and air to every part of a dwelling on a narrow, rectangular plot is unknown. Given unlimited space and light, the architect is required to satisfy the demands of his client as to size and arrangement of the component parts of his dwelling, to provide modern comforts, and to adapt, as nearly as is within his capabilities, the chosen style to the location and its environments. Individual preference in the choice of style has influenced to some ex-

tent the designs of the dwellings, but the characteristics of the place have, in turn, influenced the designs to such an extent that a homogeneous effect pervades the park. This effect of picturesqueness is most suitable, as the contour of the land is all "up hill and down dale," the curves of the roads unexpected, everything devoid of symmetry. Doubtless the choice of site, material and design or style depended in every case upon the amount of money available; however, the best houses or the most expensive do not necessarily



RESIDENCE OF MISS V. K. CLARKE.
Lawrence Park, Bronxville, N. Y. William A. Bates, Architect.

occupy the choicest sites, though it is natural and logical that they should.

In accordance with a law of harmony, buildings on a hilltop should be more aspiring than others; those on a hillside should be more irregular in plan, and should appear to be clinging to their positions; while those in a meadow should be more extended, and less aspiring. Carrying the analysis further, on the hilltop, where timber is small, soil scarce, and rock plentiful, it is but natural that rock should be used for building; on the hillside, that rock be used for foundations, and combined with timber for superstructures; while in the meadow, where rock is perhaps scarce, soil plentiful, and timber of full growth, that brick and timber should be combined. Yet a law of contrast demands equal consideration, and it

must necessarily be the eye of an artist that shall determine which law shall wield a determining influence, or to what extent their requirements shall be combined. "Oak Ridge," the home of William T. Smedley, the artist, though not the most pretentious in appearance, probably excites interest more than any other house in the park, and more firmly impresses itself on the mind. It is a beautiful structure, irregular and rambling, as it should be, but so well held together, withal, that it may be viewed and judged in its entirety. The long, low line of its main road is broken by a great gable, the most striking feature of the front, and by a smaller one to the north, which, through difference in size, detracts nothing from the greater. A feature is made of the porte-cochère, and, though hardly Elizabethan, it proves itself not incongruous. A circular stone terrace finishes the front on the north, and on the southern end the old and new studios form an irregular group. Mention has been made of the great gables in the rear, along the massive foundations of which an ivy has begun to steal its way. As to material, the foundations are of stone, extending in the rear, through the first story, and the superstructure is of the open beam and plaster kind. The color scheme is gray. The windows are of leaded glass, befitting the period. It is a house of charming interiors, showing the architect's appreciation of the value of wide staircases, windows and doors, and open



THE WHITCOMB RESIDENCE.
Lawrence Park, William A. Bates, Architect.



THE LOMBARD RESIDENCE.
Lawrence Park, William A. Bates, Architect.

beam ceilings, and his knowledge of the importance of accenting fireplaces and mantels. The large studio occupies the entire southern end of the building, and extends through two stories, a small balcony marking the second story level of the main house. It is flooded with light from a large mullioned window in the east front, or from skylights in the roof. It is a spacious, airy and bright room admirably adapted to its purpose, and easels, half-finished sketches, tools of the artists' profession, an old mahogany desk,



RESIDENCE AT LAWRENCE PARK.

Bronxville, N. Y. William A. Bates, Architect.

some massive chairs, and draperies make this an interesting interior.

The W. S. Howard house strikes one immediately as being a type and worthy of study. One is prompted to seek the purpose of the architects beyond that of meeting utilitarian requirements. The general effect, the impression, is pleasing, proportions and groupings good, the characteristics of the style well handled, the details unobtrusive. With beams stained dark brown, and plaster left its original color, a natural and harmonious effect is produced. The chief care here, beyond keeping within the limits of the style, is the wish to produce the effect of logical use of timbers, though but applied decoration, and good filling of wall-space. The entrance

porch might be classed as quaint. The house contains a beautiful carved staircase.

The houses along the valley road are, perhaps, less interesting than those on the hill. The meadow itself lacks variety, and the dwellings, arranged in line along the road, resemble those of the usual suburb. They seem much alike in plan and design, all being of the plaster type, and hint what may be done, even in small dwellings, with stone, timber and stucco in the many compositions of porches, gables, chimneys, oriels, and other features of a dwelling.



LAWRENCE ARMS.

Viewing Lawrence Park as a picturesque suburb, as a collection of attractive dwellings beautifully situated, one strolls about in quiet enjoyment without distracting thoughts. Yet there is a social life here that claims attention. The Casino, home of the Gramatan Country Club, and a little church, a gray stone structure that is attractive, are the centers of this social life. The Manor House, with square stone walls, bears witness to the fact that, when only a post road passed through the country, someone even then appreciated the advantages or charm of this locality. A few years ago a hotel was begun, but was burned before completion, and it is now proposed to replace it with a large fireproof structure. The wisdom of this, from an artistic point, may be questioned; not that the hotel would necessarily be inartistic, but is it not an intrusion? Charm is a fleeting quality; beauty may be marred. Peace, seclusion and tranquillity now characterize Lawrence Park, with freedom from those traits that make a suburb fashionable. To invade it with a spirit of worldliness would be to rob it of its charm, to over-modernize it would be to destroy its picturesqueness.



A DWELLING ON THE VALLEY ROAD.

Theodore R. Tuttle.



ENTRANCE TO THE HOMESTEAD, ELSWORTHY ROAD.
Primrose Hill, London.



THE "GREEN," ELSWORTHY ROAD.
Primrose, Hill, London.

AN ENGLISH URBAN VILLAGE.

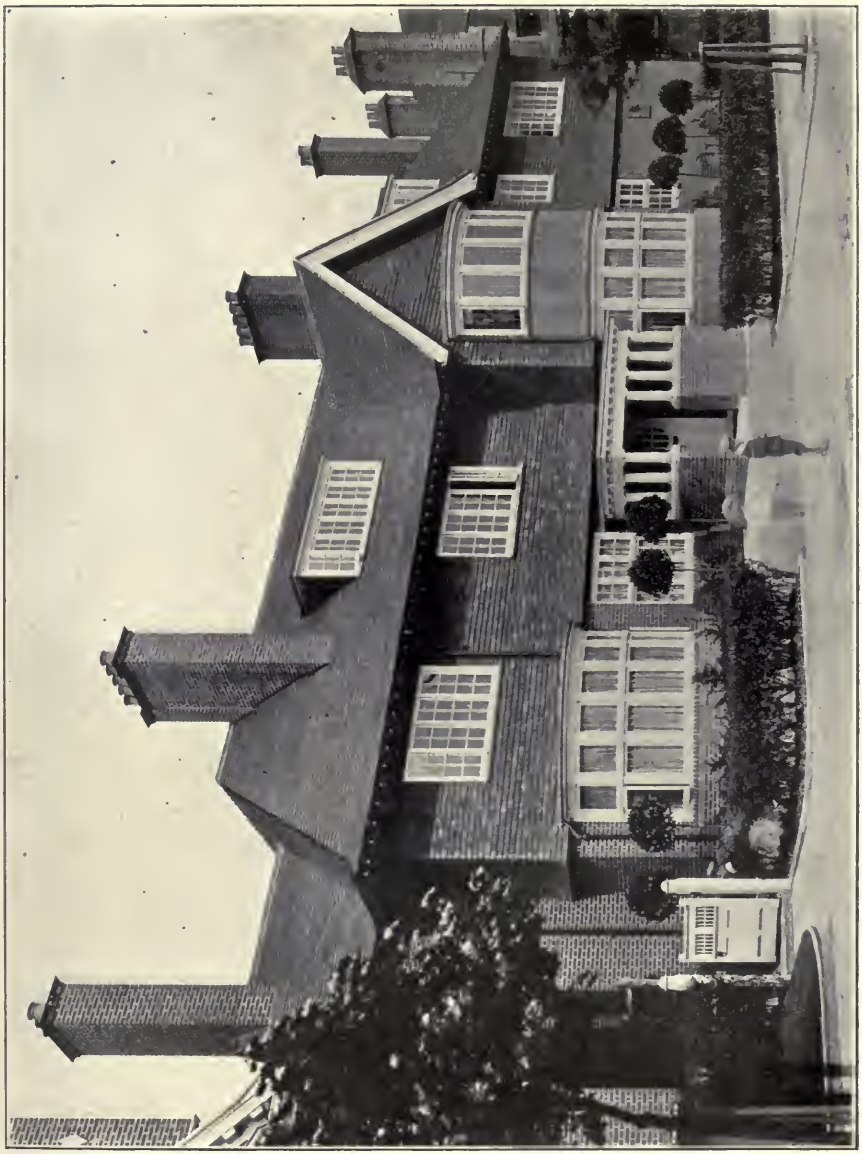
THE advent of the speculative builder is generally regarded with disfavor by the residents of a district, more particularly when that district is a matured suburb and the builder acquires some highly prized open space that has chanced to remain. When it became known that the cricket fields near Primrose Hill, London, had been disposed of for building purposes by the ground landlords, the trustees of Eton College, the inhabitants of St. John's Wood and South Hempstead were full of regret and in some cases dismay. A large house with grounds in Avenue Road was acquired and demolished in order to form an approach to the building estate, thus strengthening the apprehensions of neighboring householders.

But Mr. William Willett, the purchaser of the land, promised to put up houses of a certain standard and value, and he soon proved better than his word. The three roads are of simple width, tree-planted and bordered with well trimmed privet hedges and strips of turf, while a small green has been formed, surrounded by posts and chains, and the back gardens of many of the houses open on to a common recreation ground in the center of the property.

The houses themselves, at present about forty-five in number, have been designed by the builder's own architectural staff, and are all different in plan and elevation, having only one feature in common, viz., that each stands detached. Most of the houses are built of red bricks, with red tiled roofs, white painted woodwork, overhanging eaves and barge-boarded gables. Purple bricks, rough-



RESIDENCE OF MR. C. F. HARDY,
Primrose, Hill, London.
Wadham Gardens,



WADHAM LODGE.

Primrose, Hill, London.

Wadham Gardens.



"ANCHEN GRAY."

Wadham Gardens. Primrose, Hill, London.



EAST LODGE.

Wadham Gardens. Primrose, Hill, London.



HOUSE ENTRANCE, WADHAM GARDENS.

Primrose Hill, London.

cast, half timbering and weather tiling are occasionally introduced. Several houses have green slate roofs and plaster enrichments upon the walls, "The Homestead" being, perhaps, the most attractive instance. One, the house with the green shutters, is of a formal Georgian type, with well proportioned windows and doorway, the latter of considerable refinement of detail. "Woodstock" is constructed with stone dressings, porch and quoins, and the lofty triple-transomed window of the hall recalls Elizabethan types.

The houses are well planned, well constructed and well drained, the interiors are commodious and homely. Spacious staircases, artistic fireplaces and modern fittings appeal to most of us, whilst the comparative lowness of the houses is one of their practical merits in the eyes of a prospective mistress of several servants. Lofty houses in London suburbs are not in request now the advantages of living in flats are so generally appreciated. These low houses command a rent of £300 to £400 per annum, or about as much as a six-storied mansion in South Kensington.



VIEW FROM THE COMMON GARDEN.

Wadham Gardens. Primrose Hill, London.

THE BASILICA OF ST. ANTONIO AT PADUA.

IT is possibly one of the greatest drawbacks to the architectural profession in acquiring as well as practicing the art that we are in all things too imitative. Our desire is ever to "do the proper thing," which in nine cases out of ten is but to say that we shall be perfectly satisfied if we can only copy after other people: do what they have done, all that they have done and no more. In practice we have become accustomed to using certain forms for certain positions and there are few of us who would boldly attempt to adapt these forms to different uses or adopt new forms entirely. It is so with everything we touch, or do, or say. We wish to study classic architecture and we all flock to Rome and Athens. Do we ever think of visiting Dalmatia or Sicily? By all means let us visit the sites of the masterpieces, let us examine, sketch and measure them so as to make ourselves sure of the accepted architypes; and then afterwards let us go a little further and see the same types as translated into material by other hands for other uses and to suit other soils; so we shall become acquainted with all the possibilities of the style. To study the Renaissance we travel—and rightly—to the place that gave it birth, to Italy; but there as before we find curselves unconsciously iron bound in the grip of precedent. We begin our journey with the idea that the Renaissance produced three forms, Venetian, Roman and Florentine. We have read in all our books of these three cities teeming with examples, and if we have read and remembered more, it is that Anderson admired a palace or two at Bologna, that the architecture of Servia is described as "Streaky-bacon" and that Palladio lived at Vicenza and built a few things there. Those who have a taste for books have read of Pistoia, Genoa and other cities, but the majority of us have resolutely clung to the primary idea of Rome, Venice and Florence. So we pack up our sketch books and rules and hie us to Italy. We visit Milan, because we cannot very well help it and drive around the Duomo merely out of curiosity, for it is Gothic and we are in search of the neo-classic and do not dream that half the stones of that pile are full of the struggle of Renaissance-loving artists to produce Gothic forms, more instructive than the fully developed types could ever be. And from Milan we go to Venice direct, because every one does so and we know of nothing to see on the way. Similarly for Gothic we take our Moore or our Pickman and explore the examples they quote both in England and France. Our Romanesque we find cut and dried for us on the Rhine, at Cologne, Worms and Speyer.

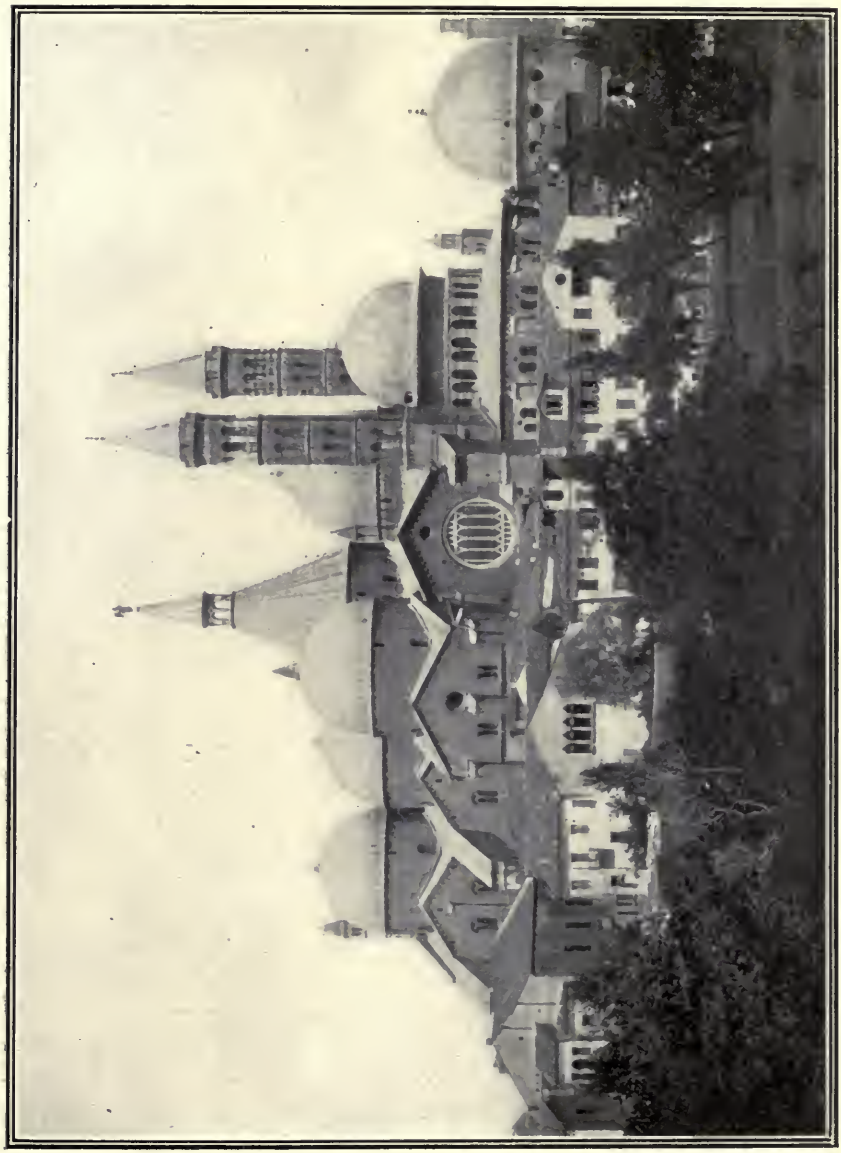
But with all these copy book examples near, comparatively, to hand, there remains one style which we have to give up as beyond our reach; for it is only to be found in its complete form in its own home of Constantinople; and in our hurried visit to Europe there is little time to spare for a visit to the old city of Byzantium. True, we have St. Mark's at Venice and the churches at Ravenna, but the dome being the great feature of the style and developed to its utmost limits only in the Santa Sofia, we grow to look at that one vast cupola which "appeared as though swinging from heaven by a chain" as being the example and nothing less will suffice. There is nothing else that will account for the apathy, with which examples of Byzantine architecture nearer at hand are passed by unstudied. It is true, of course, that we visit these buildings when we come across them, but we never pause to analyze the contrivances which have produced the results we see in the same way as we do with the other styles. It will be interesting to note by the way if Bentley's great Westminister Cathedral in London, England, built in this style will have many followers and set the mode for a neo-byzantine craze.

But to return to the indictment. To those who travel direct from Milan to Venice, thence to Florence and Rome and so back to the starting point, it will come as a startling novelty to be told that for every example in the "show" cities there are two equally good to be found in the provinces, yet this is no exaggeration of the truth; works at Brescia rivalling the Cheisa dei Miracoli at Venice, palaces at Piacenza by Vigsola and so on 'till the score mounts up to thousands. But of all the unheeded towns of the north Padua probably is the one which best merits attention and among Padua's buildings the chiefest is undoubtedly the Basilica di S. Antonio.

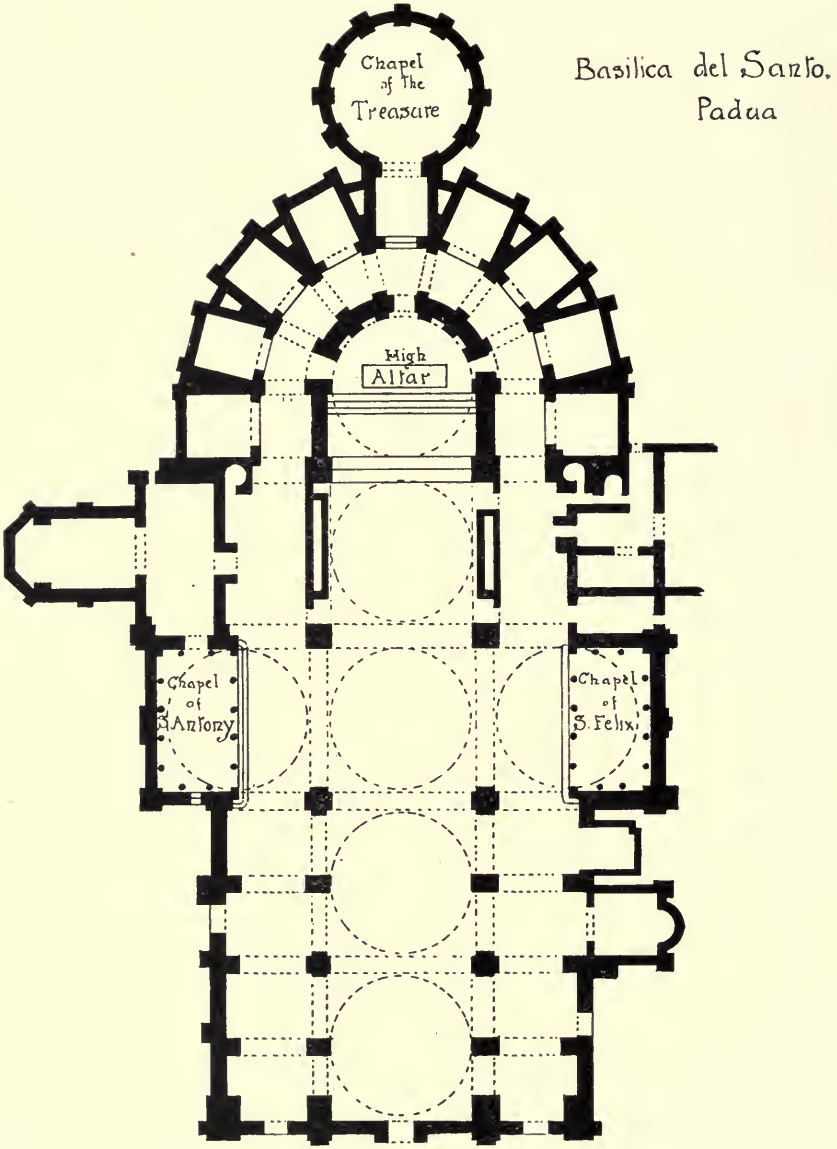
It was a good thing, on the whole, for Padua that St. Anthony—Il Santo, The Saint he is called there, as if there never was nor could be another Saint—happened to die there in 1231 and the Paduani rose to the opportunity, elected him their patron and vowed to erect a temple that should put all others to shame in his honor. History does not say who was the architect, but Vasari, with more courage than accuracy, tells us that it was designed by Nicola da Pisa. The Marchese Selvatico, the most accurate historian of the city, attributes the work to the Camacini, the "Cathedral-builders," of whom Leader Scott wrote, and it is more likely that it was the work of the builders alone than the execution of any set design. It was begun in 1256 and practically completed in fifty years. It is exceedingly difficult to describe the building, for belonging to no style it yet partakes of all and in the result is one of the most remarkable and certainly one of the richest churches in treasure in the whole world. The plan is that of an ordinary Gothic cathedral in form, with nave,



WEST FRONT OF THE BASILICA OF S. ANTONIO AT PADUA.



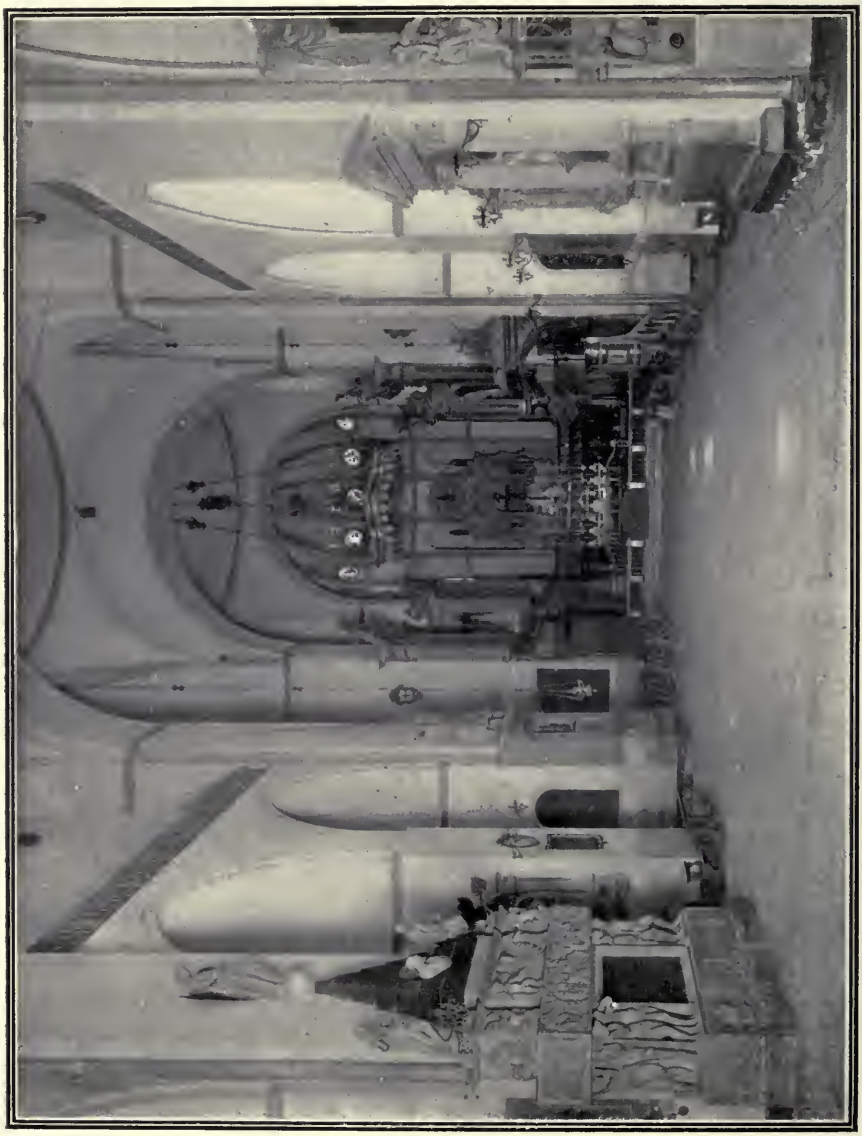
THE BASILICA OF S. ANTONIO OF PADUA FROM THE TOWN WALLS.



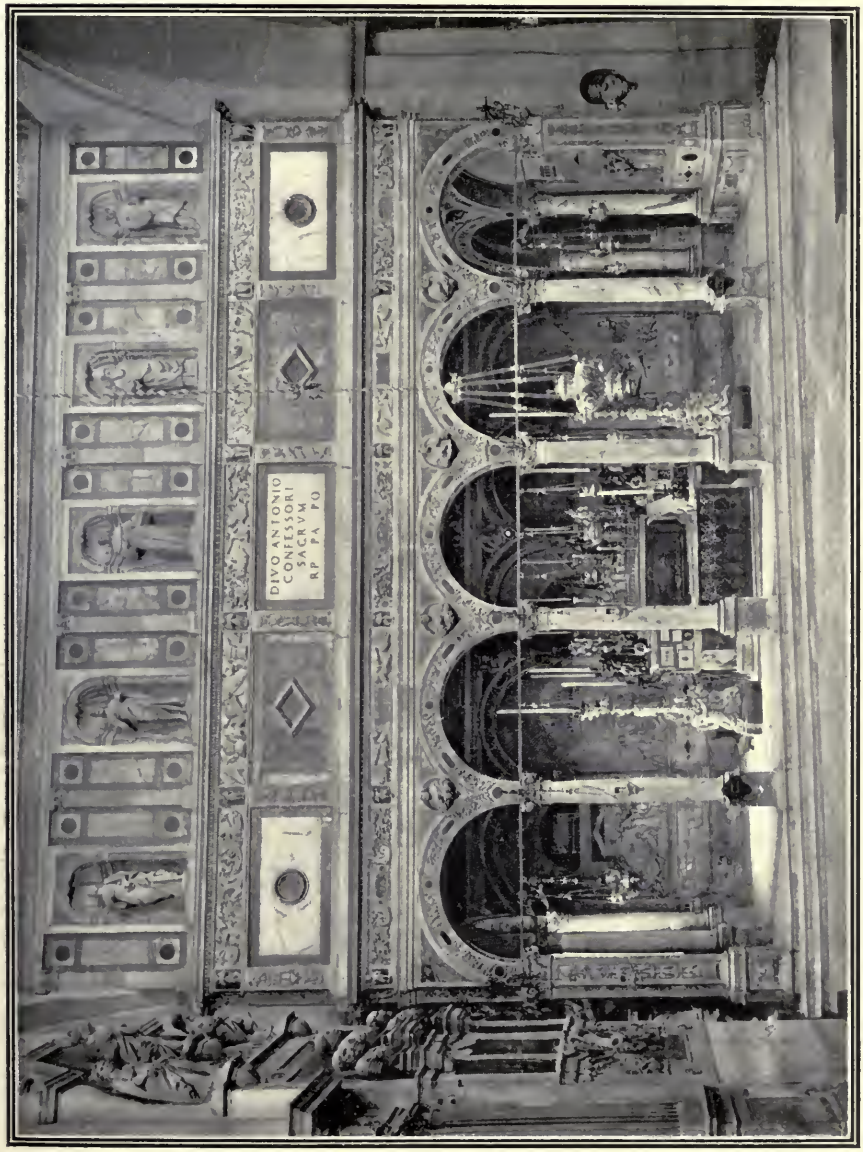
PLAN OF THE BASILICA OF S. ANTONIO AT PADUA.

aisles, transept, chancel and ambulatory, but what would have been slender pillars are massive shafts carrying the domes like those of St. Mark's, Venice. It is domical throughout, a form which makes for simplicity, as the bays are each perforce square, while at the transepts the aisles are simply widened out to form the square once again. Its place in the development of styles would approximate to that of the Angevin and Perigordian churches where the same influence was at work, viz., an Eastern influence following the trade route from Constantinople to Venice, thence via Padua across Italy to Marseilles and on to the south of France; an influence which brought with it sufficient Byzantine feeling to create a desire for domical coverings but west of Venice not strong enough to insist on the Greek cross in plan. At Padua we find in the central portion the complete Greek form of equal arms each with its own dome and one for the crossing, but in addition we have a lengthening of one dome to the westward and a similar one for the chancel with a half hoop of chapels thrown 'round it, the central one covered with yet another dome. Not that this was a gradual enlargement, for there is no evidence to show that the plan was ever intended to be less than we find it now and the result is one which, had it been in the South of France, might well be considered as a fresh variant of the many Romanesque attempts to roof a basilica with arched construction. It must be remembered that Venice, with its many domed St. Marks, lay but twenty-three miles to eastward, and Padua with her desire to eclipse all other churches would not have considered her object achieved unless her new church bore as many and as large domes as her neighbor. Moreover, St. Mark's was planned at a time when Byzantine influence was paramount in the Adriatic, while the "Santo" was not begun until 1256, when planning had fallen into the Latin form of cross; yet still it had to be domical, and so we have a kind of free-lance example, Gothic by force of the epoch while Byzantine in intention.

When we consider its external elevations we find ourselves face to face with fresh difficulties, for it lacks the marbles and surface enrichments we look for in the Eastern style and is innocent both of the traceries of Gothic and of the crude carvings of Romanesque The little ornamentation on the western façade is Gothic, yet reminiscent in its arcaded gallery and corbelled cornice of Lombardic use, but who could affirm that the long and slender campanili which rise from either side of the chancel dome are anything but Byzantine minarets emanating direct from the Orient? Throughout the whole of the Veneto we find the bell-towers square in form and entirely detached from the building; here we find them incorporated in the edifice, multi-angular and crowned with extinguisher roofs which are own brothers to those of the Santa Sophia. The open-



INTERIOR OF THE BASILICA OF S. ANTONIO AT PADUA.



THE CHAPEL OF S. ANTONIO.

Basilica of S. Antonio at Padua.

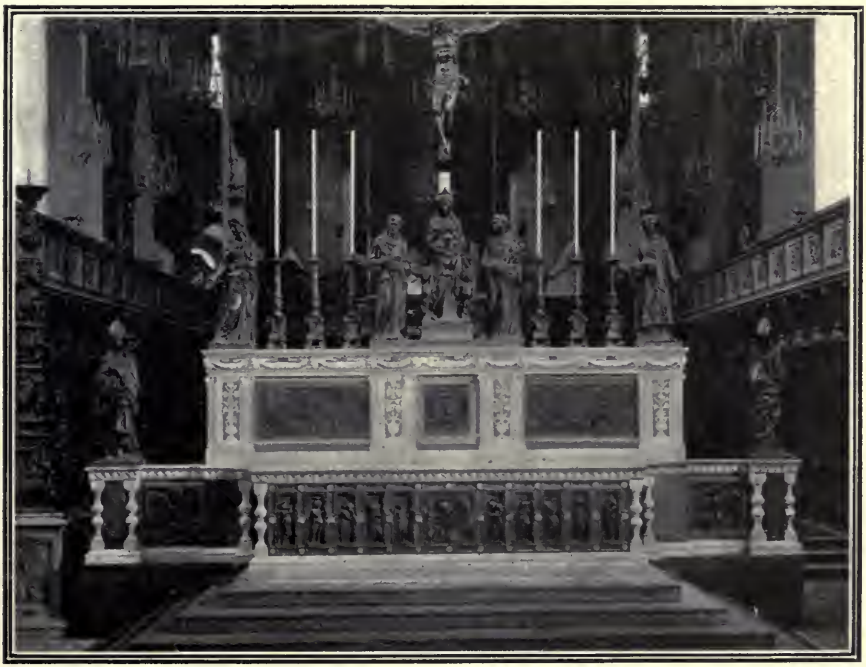
ings of the many stories are gay with reticulated brickwork of every line and the belfry stage arcade is finished with pointed arches of horse-shoe form and with a contraflex curve, a variant which could belong to another style than that of the last. Above the roof all is plain sailing, for the shape of the domes is frankly that of Venice, saving for the omission of the bulbous cupolas which complete the latter example.

Coming to the exterior of the apse we are confronted with a work of later times, probably dating from the middle of the XV. century, to which period perhaps belong also the two minarets already referred to. In spite of the lateness of the date, the details are still Gothic, yet the arrangement of the whole is so subtle that in spite of one's better judgment, one feels that the thing is Byzantine. The Byzantine is always there obtruding on the imagination while the eye sees but Gothic. Last of all in date externally comes the Cappella delle Reliquie, the Chapel of the Relics or more commonly called the Chapel of the Treasure. This is represented in the side view by the isolated dome to the eastward and was built in 1689 by Filippo Parodi, a Genoese architect.

If the outward appearance of the Santo is unimposing after the eye has become used to the singular arrangement of so many domes and the conical steeple which accentuates the crossing, it must be confessed that at first sight the interior is perhaps even less striking. Guide books tell us in the curt phraseology which they have made practically their own that "the interior is whitewashed;" but when the present writer was last in Padua the whitewash was being carefully removed, revealing a perfect gallery of priceless frescoes, the undoubted work of Mantegna and others, and probably by now the whole of the walls and vaults glow once more with the bright colors which have so long been hid away. But this is not the only treasure of this wonderful treasure-house; it is indeed rather the least of them all, for the list is so long that one hesitates as to where to begin to recount the glories of this art museum. There is no space, and the repetition would be wearisome if one attempted it, to point out the worthy monuments of each chapel, and it must suffice if we confine our notice to the Chapel of St. Anthony and to the High Altar. The "Treasure" would require a whole article to itself.

In the north transept and jutting out into the line of the north aisle of the nave stands the Cappello del Santo—here we must reiterate that for Padua St. Anthony was and is the Saint—enclosed with a very beautiful arcade of Veronese marble. It was designed in 1500 by Andrea Riccio or Briosco and is certainly quite as rich and refined as any portion of the Chiesa dei Miracoli at Venice. Not only this, but the three walls of the chapel are par-

titioned out with plasters so as to form nine panels, each one containing a very large high-relief representing the miracles wrought by the Saint, and executed, some by Jacopo Sansovino, some by the Lombardi, but all of them of striking beauty and only lacking consideration as masterpieces, because there are so many here of equal merit that the eye becomes unable to appreciate their full value. It is a church where one must go every day for a fortnight fully to grasp the exquisiteness and delicacy of the whole. The examples illustrated are: the Saint restoring a dead girl to life, by Jacopo Sansovino, and the Saint causing a newly born child to speak in



THE HIGH ALTAR.
Basilica of S. Antonio at Padua.

defense of its mother's honor, by Antonio Lombardo. It is astonishing to note how almost purely Greek the latter is, the Hellenic profiles and drapery and the treatment of the hair reminding one irresistibly of the fragments from the Parthenon pediments in the British Museum. Yet the Renaissance is there, too, in the perspective of the background and the chubby children which are verily and indeed children of the Renaissance. It does not come within the pale of architecture proper to speak of the ornaments of the chapel, the sanctuary lamps of soiled gold, the candlesticks of both gold and silver and the massive silver coffin which contains the remains of the Saint, but one cannot refrain from calling attention



BAS-RELIEF OF NEW-BORN BABE SPEAKING ON BEHALF OF ITS MOTHER.
Basilica of S. Antonio at Padua. Sculptor, Antonio Lombardo.



S. ANTONIO RESTORING A DEAD GIRL TO LIFE.
Sculptor, Jacopo Sansovino.
Basilica of S. Antonio at Padua.



BRONZE TABLET ON THE HIGH ALTAR.

S. Antonio restoring an amputated foot to a youth. Basilica of S. Antonio at Padua.

to the beautiful marble vases which sustain the large silver candlesticks on either side of the altar. They were sculptured in 1699 by Filippo Parodi and consist of gracefully grouped angels clinging to the pedestals.

Before proceeding to describe the high altar a word of explanation is required. The basilica, rich in art treasure, is richest of all in the bronzes of Donatello and his pupils, but the many examples were previously scattered in different parts of the church and it was only when Padua celebrated the 7th centenary of its Saint* that it was decided, by a happy inspiration of the architect to the fabric, Commendatore Boito, to collect all these bronzes together and construct an altar which should be known as the "Altare Donatelliano." The interior view of the basilica shows the altar before the transformation, but the detail view shows it as reconstructed, and few people will be found to regret that this great work was carried out; the harmony of the whole is perfect and the whiteness of the marble borders only enhances the beauty of form and gradation of surface of the dull, yet gleaming metal.

The pieces collected for this work were:—

In the riser of the retable three low-reliefs—(a) The Saviour seated on a monument surrounded by angels, (b) the story of the miser who was found to have a stone instead of a heart and (c) the miracle of the man whose foot was cut off and replaced.

The celebrated angel musicians, in the riser of the altar itself. These have probably been more illustrated than any other—save the statue of Gattemelata—of Donatello's works.

Statues of St. Louis of Toulouse and St. Prosdcimus (on the retable).

The life-size crucifix and five statues—(a) the Redeemer on the cross, (b) St. Francis, (c) the B. V. Mary and Child enthroned, (d) St. Daniel and (c) St. Guistina (all on or around the altar).

The low relief of gilt bronze representing the Descent from the Cross.

Four panels in low relief with the symbols of the Evangelists and three other panels—(a) the dead Christ between two angels, (b) miracles of the mule adorning the Sacrament and (c) the new-born babe speaking to assert its mother's innocence.

Those, then, who wish to study the work of Donatello need do no more than visit the Basilica of Padua, for there in this one altar we have an epitome of his craft from low relief to figure sculpture. It is said that documents have been found in the Ammistrazione del Santo which prove that the present reconstruction is but the carry-

*The author offers no explanation of how the seventh anniversary happened to take place in the year 1900. St. Antonio died in 1231, and was canonized the following year; the church was begun in 1256, part finished 1307, completed 1475 and restored 1749. The author has taken these dates in turn and added 700 to each, but he finds that none of them total up to 1900, and therefore he gives the problem up.



BASILICA OF S. ANTONIO AT PADUA.

From the Giardino Treves.

ing out of the original design, and this is indeed more than probable when it is considered how marvellously the whole combines into one harmony of line. Each portion is a masterpiece, especially the statue of St. Anthony with his emblems of lilies, to the right of the crucifix. The symbols of the Evangelists, again, are unsurpassed for refinement of treatment and grace of composition, while there is a subtle variety of surface without confusion which makes it impossible for the eye to weary of gazing. The least pleasing portions of the altar are the panels in the retable, which are described as the work of Donatello and his pupils. They lack the master's touch and do not display anything of the finish of the other works. Knowing as we do that all these tablets were modelled in wax on a plaster back, we seem to feel that the hand which wielded the irons had not gained the requisite strong-and-light touch, for while in the Evangelists there is all the appearance of repoussée work which is fit and proper for bronze castings, in these we see a little too obviously exactly how each stroke was made, and can see as it were the plastic wax yielding readily on each side of the knife. This is perfectly justifiable, of course, for a work which is to remain in wax, but when the wax is but a preparation for a somewhat intractable metal it is unfortunate that the finished bronze should bear upon itself the appearance of being still but a wax model. The elaboration of the perspective background is, however, remarkable, especially in the tablet representing the Saint restoring to a youth a foot which had been cut off.

One more work is here, which, though not by Donatello, but an adjunct of the altar, must be mentioned; the great bronze paschal candlestick by Briosco. Part of it is seen to the extreme left in the engraving of the altar. It stands over seventeen feet high and occupied the artist from 1507 to 1515. Like the cathedral candelabrum in Milan Cathedral, it is covered with Pagan as well as Christian symbols and is a work of great beauty.

The church merits a visit from all who are interested in art and from all who love beauty. One enters the Giardino Treves and catches a glimpse of the pile from among the trees with its mirrored reflection in the clear waters of the Bacchiglione, or one can wander along the city walls and watch the successive domes and pinnacles as their relative positions change with the point of view: ever harmonious, always grouping sublimely and breathing a whisper of the East. And then to escape from the burning sun and the heat reflected from the cobbled streets and whitewashed houses, one enters the great Basilica del Santo to feast the eye on the works of man and to marvel at the greatness of the Power that created him and taught him to use his hands to such mighty purpose.

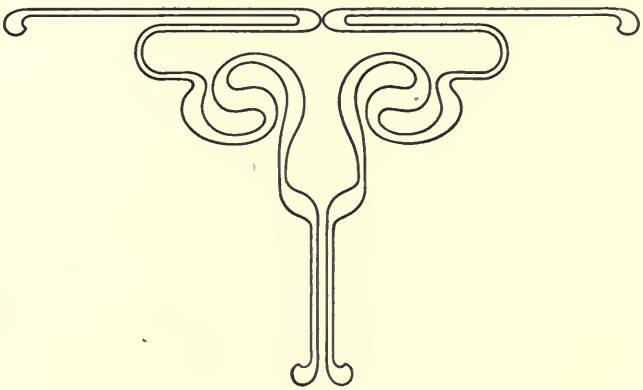
Robert W. Carden, A. R. I. B. A.



TIME IS SHORT AND ART IS FLEETING.

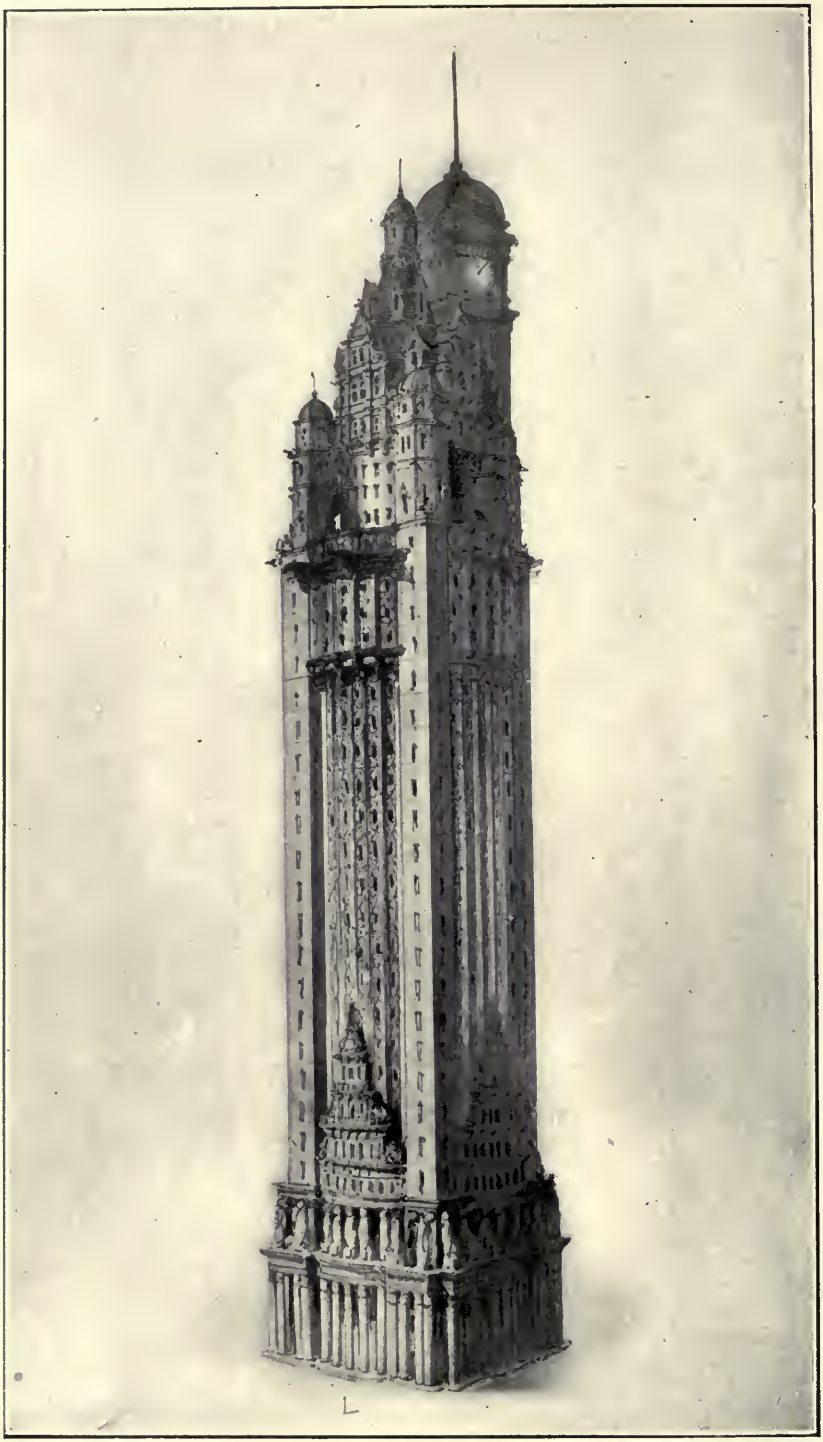
THE WORKS OF MESSRS. BARNEY AND CHAPMAN

J. Stewart Barney :: Henry Otis Chapman



BY

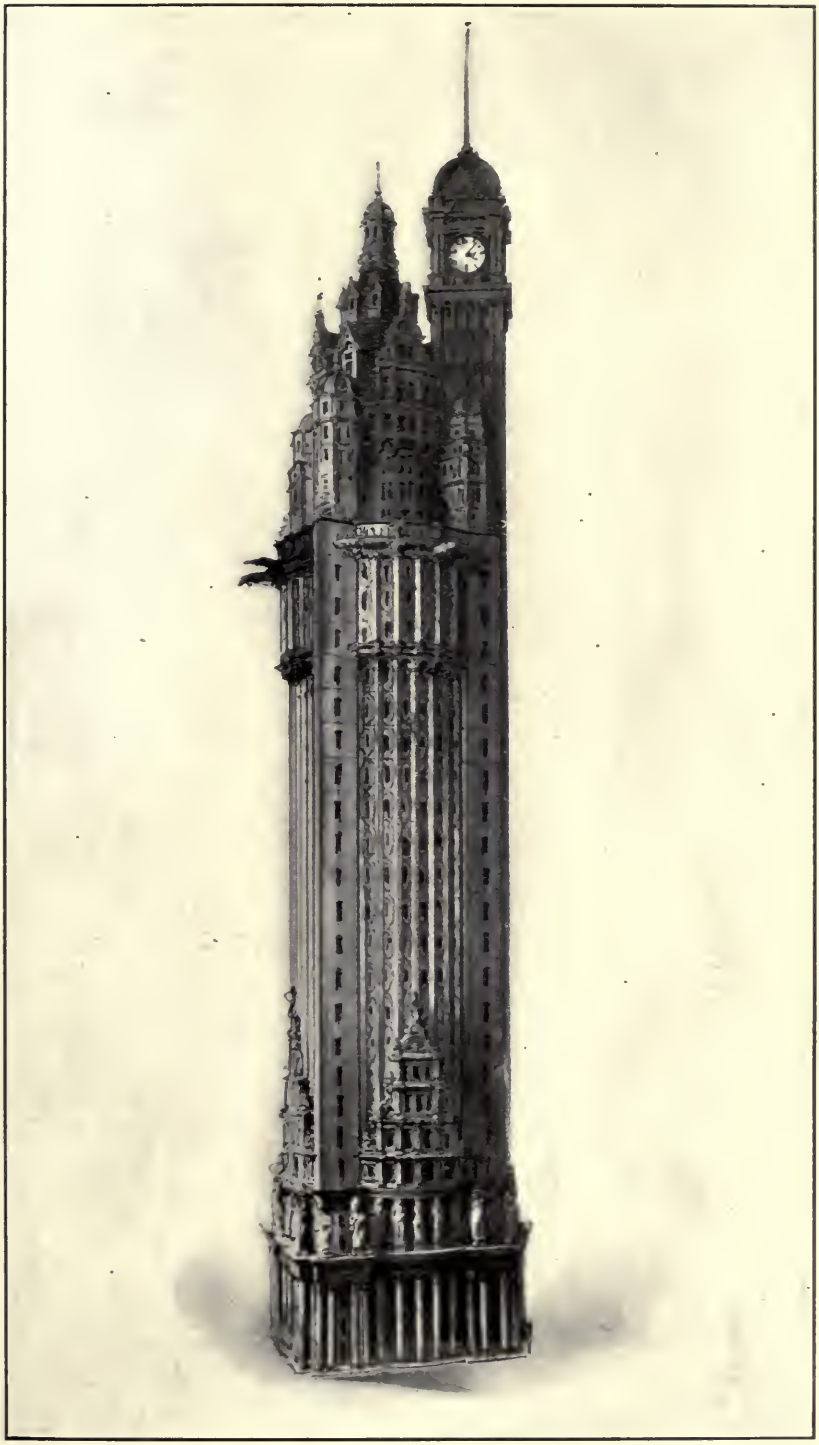
MONTGOMERY SCHUYLER



PROPOSED BUILDING FOR THE NEW YORK AMERICAN.

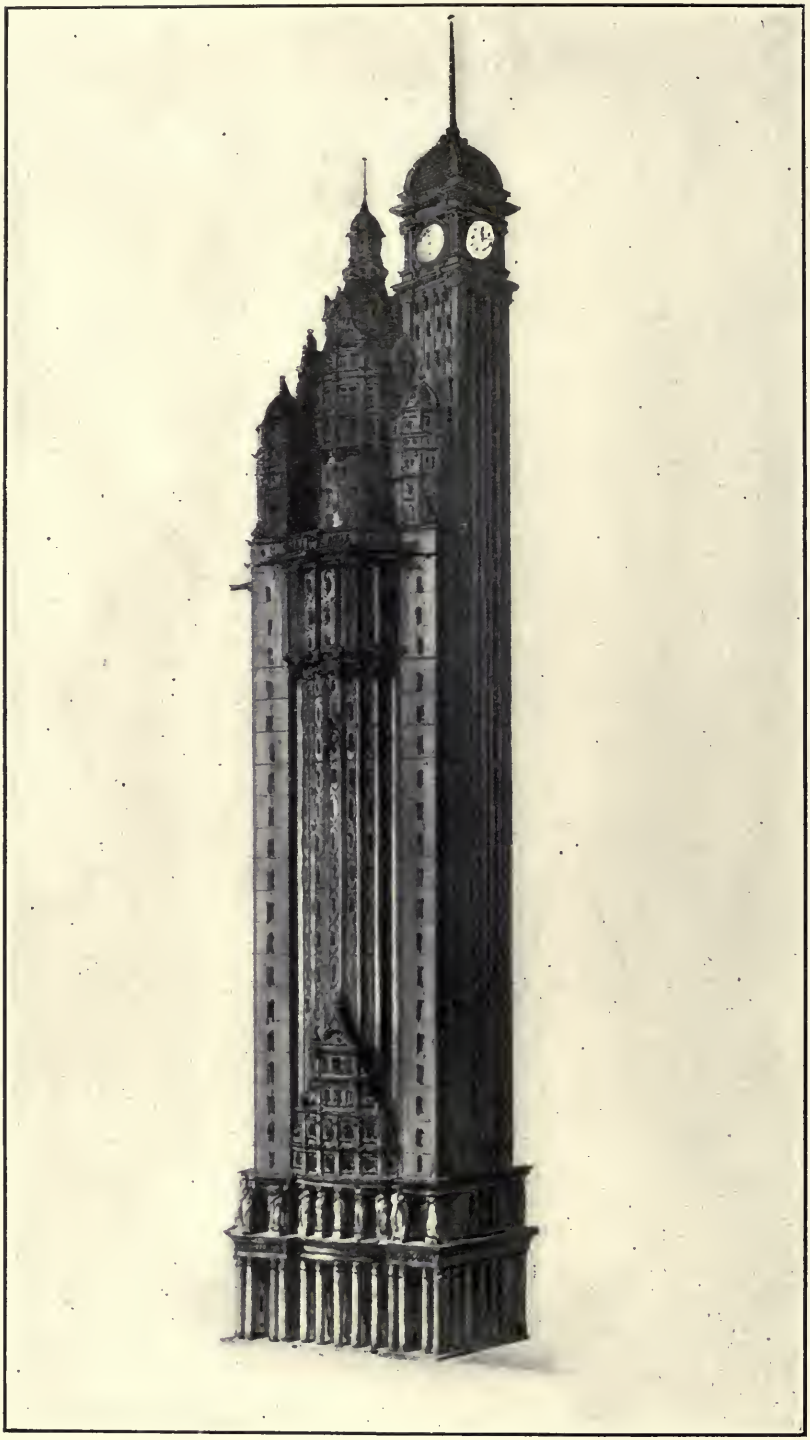
Broadway and The Circle, New York City. Barney & Chapman, Architects.

The following four plates illustrate a proposed building for the New York "American" or "The Journal," as it is better known. The site for the building is quite irregular, the four fronts, those on Broadway, the Circle, 8th Ave. and 58th Street each being of a different length. In order to utilize the area circumscribed by these boundries without the loss of a foot of space and without producing at the same time a building that should emphasize if not exaggerate the irregularities of the lot, was a problem that demanded unusually clever handling. It will be seen even from our illustrations that the architects succeeded with conspicuous success and produced a most notable skyscraper, five hundred and fifty-five feet high and of forty stories



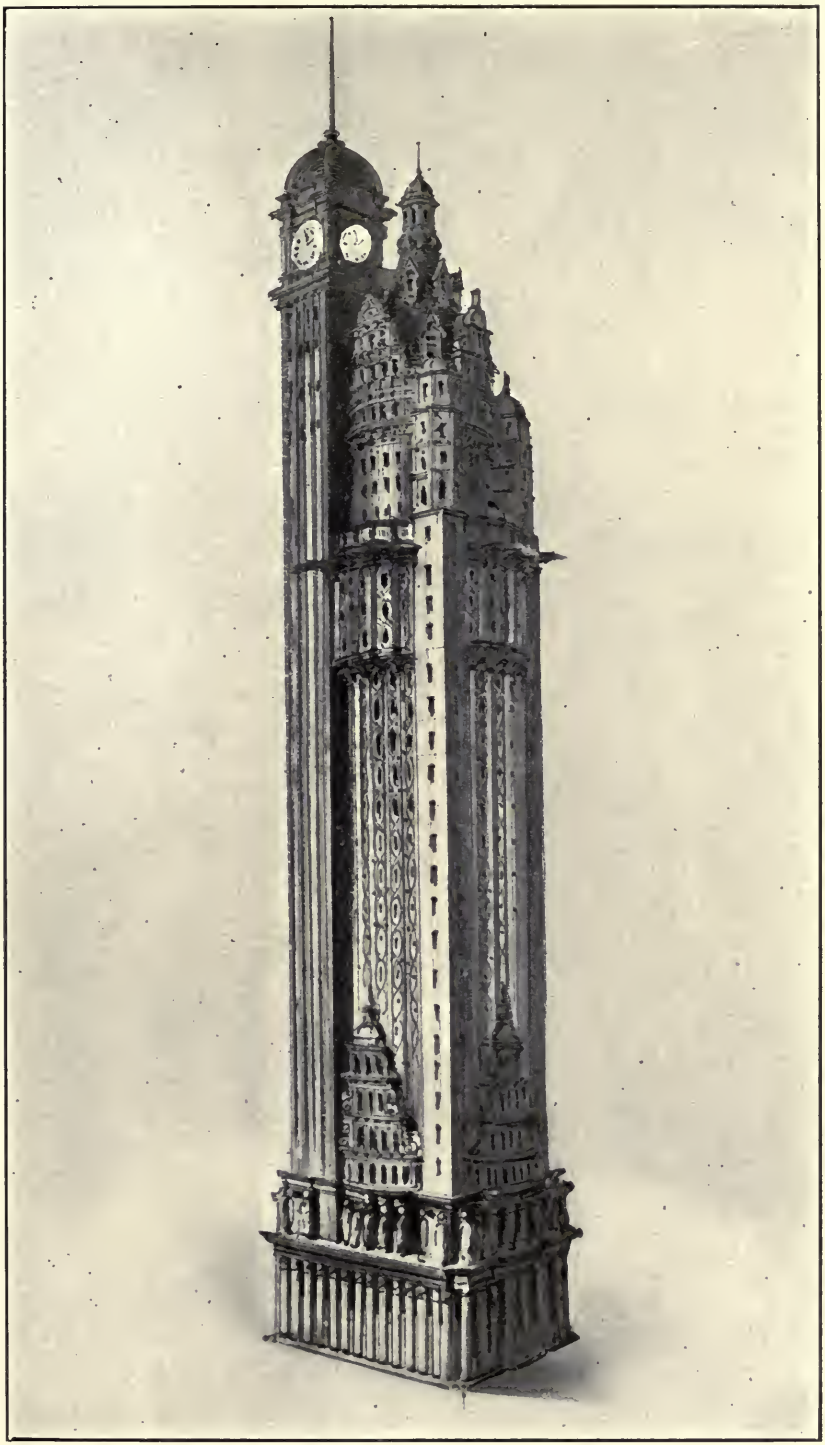
PROPOSED BUILDING FOR THE NEW YORK AMERICAN.

The Circle, New York City. Barney & Chapman, Architects.



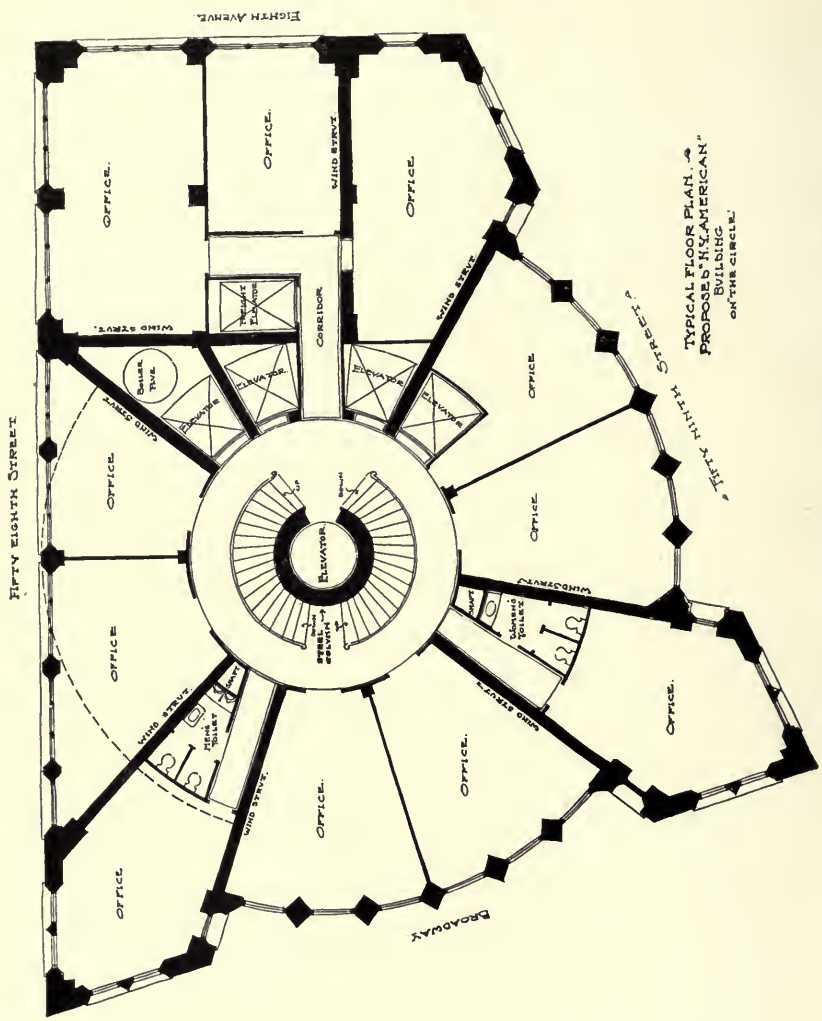
PROPOSED BUILDING FOR THE NEW YORK AMERICAN.

Eighth Ave. and The Circle, New York City. Barney & Chapman, Architects.



PROPOSED BUILDING FOR THE NEW YORK AMERICAN.

58th St. and Broadway, The Circle, New York City. Barney & Chapman, Architects.



PLAN OF PROPOSED NEW YORK "AMERICAN" BUILDING.
The Circle, New York City. Barney & Chapman, Architects.



TYMPANUM, BROADWAY TABERNACLE, NEW YORK CITY.

THE WORK OF BARNEY & CHAPMAN.

SINCE the adoption of a distinctly Gothic design for the enlargement of West Point, it has become more permissible than it has been for twenty years or so to discuss the suitability of Gothic for other than strictly ecclesiastical uses. It is quite true, as I have had the honor of pointing out in these pages (Architectural Record, Vol. XIV., No. 6) that the choice of Gothic at West Point was practically compelled, short of a clean sweep of the existing buildings, with all their traditions, which would have been an operation of a more than architectural vandalism, so that the competition was by no means a "Battle of the Styles." If it had been, or if the expert advisers of the authorities had taken that view of it, we may be sure, from their own respective works, that a Gothic design would not have received their preference. They simply found themselves forced, by fidelity to the interests in which they were employed, to recommend a Gothic design for this particular purpose. But, none the less, the result was, as it could hardly help being, acclaimed on the one side, the side of the minority, "few and faint, but fearless still," as a victory in that battle, and deplored on the other, the side of the aggressive and triumphant majority, as a defeat in it. In fact, one of the disappointed competitors was overheard to remark, in the heat of his disappointment, that this result had put back architecture in the United States for half a century. To those who are by no means of that opinion, there is a special interest in the work of an architect who has continued to devote himself to Gothic in spite of the dictate of fashion, as followed and imposed by the great majority of his profession, that the Gothic revival is hopelessly dead.

That is a proposition which one finds great difficulty in accepting. While human nature remain what it is, the romantic element

in art, in all art, will sometimes break out. The preference for it seems, on the part of those who have it, to be temperamental and instinctive. *Naturam expellas furca, tamen usque recurret.* The formal and periwig-pated Georgian art in England seemed to be, at the end of the eighteenth century, far more firmly established in all arts, literature particularly included, than the French academic architecture can to anybody seem to be established "here and now." And yet Walter Scott, preceded though he had been by Collins and Gray and Thomson, inaugurated a movement which not only characterized English literature throughout the nineteenth century, but swept over all Europe, and had its distinct effect upon the arts that deal with form. It became so firmly established as to enlist many men who were by instinct and temperament classics and not romantics at all, as, in architecture, the respectable Sir Gilbert Scott, whom nature destined for a correct composer in classic, but who found himself, possibly to his own astonishment, one of the leaders of the Gothic revival. That revival obtained, a third of a century ago, unquestioned control of the building of England, of which the United States were architecturally still a dependency, and of South Germany, and produced practitioners who really seemed to work in the mediaeval spirit as well as with mediaeval forms. In France, despite the vigorous protestantism of Viollet-le-Duc and his coadjutors, the official style, aided by the official inculcation, was too deeply rooted to be displaced, and the displacement was rendered the more hopeless by the fact that the protestants were so unsuccessful as designers. Indeed, the ineptitude of the modern Frenchman to the style of which his country was the birthplace, and of which it contains the chief monuments, the country being at the same time the home of one of the most artistic of modern peoples, is one of the strangest of the many strange anomalies in the history of modern architecture.

All the same, the Gothic revival, in the sense of an attempt to extend the style of the Middle Ages to all modern requirements, was a failure, and we have to own that it deserved to fail. It failed because "the letter killeth," and because the archaeological and ecclesiological traditions which in England had so much to do with bringing it about, prevailed, with the majority of its practitioners, to the end. Those who attained to a perception of the principle, as separable from the forms of mediaeval building, perceived and proclaimed that that principle was capable of meeting the exigencies of new constructions and new principles as, in the thirteenth century, it had met the exigencies of a vaulted construction in masonry. To this there was no logical answer possible except a demand that the new forms should be produced, and the new

forms were not forthcoming. The revival declined to a mere preference for Gothic over classic forms, which were equally and only equally irrelevant to modern requirements, with the addition, to be sure of the far wider range and variety of the Gothic repertory, but with correlative drawbacks, of which one of the chief was the apparent impossibility of employing independent and fully developed sculpture in association with those architectural forms. One may maintain that the impossibility was only apparent; that the Gothic sculptors modeled as well as they knew how, even though their work, like that of the Egyptian sculptors, was conditioned by the architecture and took on architectural lines and an architectural character; that they would have made better figure sculpture if they had known the figure better, and that they would have found some way of combining this more perfect sculpture with the architecture. But, obviously, the only satisfactory way of making this demonstration would have been by way of an object lesson, in which the more developed sculpture should equally take its place in as part of the architectural effect. A partial solution of this problem has lately been offered, here in New York, in the new porch of St. Bartholomew's, where a sculptor of modern acquirements and of distinct individuality had to fit his work to an archaeological reproduction of Romanesque architecture. The result is full of encouragement, in this particular view. It is not to be supposed that the sculptor deliberately laid aside any part of his technical equipment, or modeled less well than he knew how. And yet the architectural appropriateness of his work is not less striking than its merit as sculpture. It is indeed a Gothic revival in spirit, and puts to shame the work of those "Gothic sculptors" who have been insisting by their works that only stiff manikins and "stained glass attitudes," "both angular and flat," were really consonant with the traditions of Gothic architecture.

While, from the Gothic point of view, the evolution of structure constitutes the history of architecture, and the exposition of the construction, in any particular building, constitutes the architecture of that building, it would be impracticable and unjust to hold the Gothic revivalist to too strictly a logical account for all his details. What, for example, is the "function" of a crocket, or, as it most frequently occurs in modern work, of a gargoyle? It has, I believe, been attempted to be shown that the crocket was a facility for the mediaeval steeple-jack, though the modern steeple-jack, so far as I have observed his operations, when he has a spire to scale, is wisely wary of trusting himself to it. But, practically, it is evident that these two members, to which many more might be added, have no more "meaning" than the ailerons or cartouches of the Renaissance. They make the outline bristle. The designer



THE BROADWAY TABERNACLE.

Broadway and 56th St., New York City.

Chas. A. Cowen & Co., Builders. Barney & Chapman, Architects.



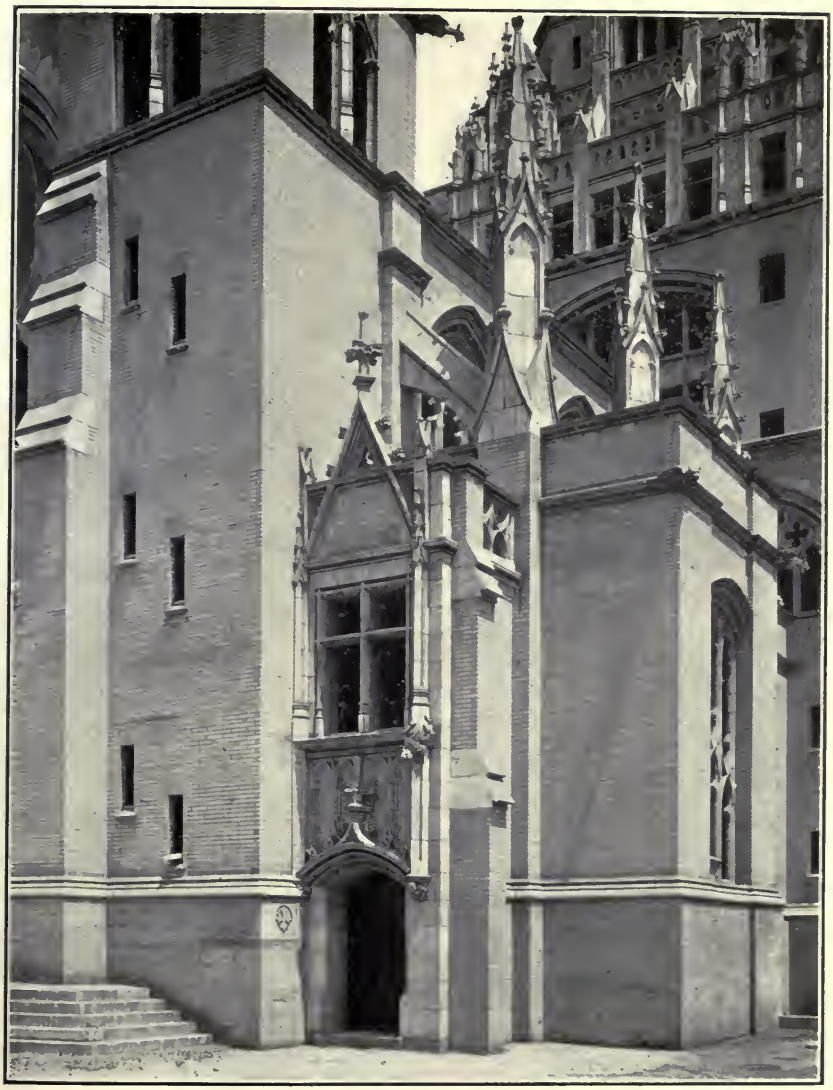
THE BROADWAY TABERNACLE.

Broadway and 56th St., New York City. Barney & Chapman, Architects.



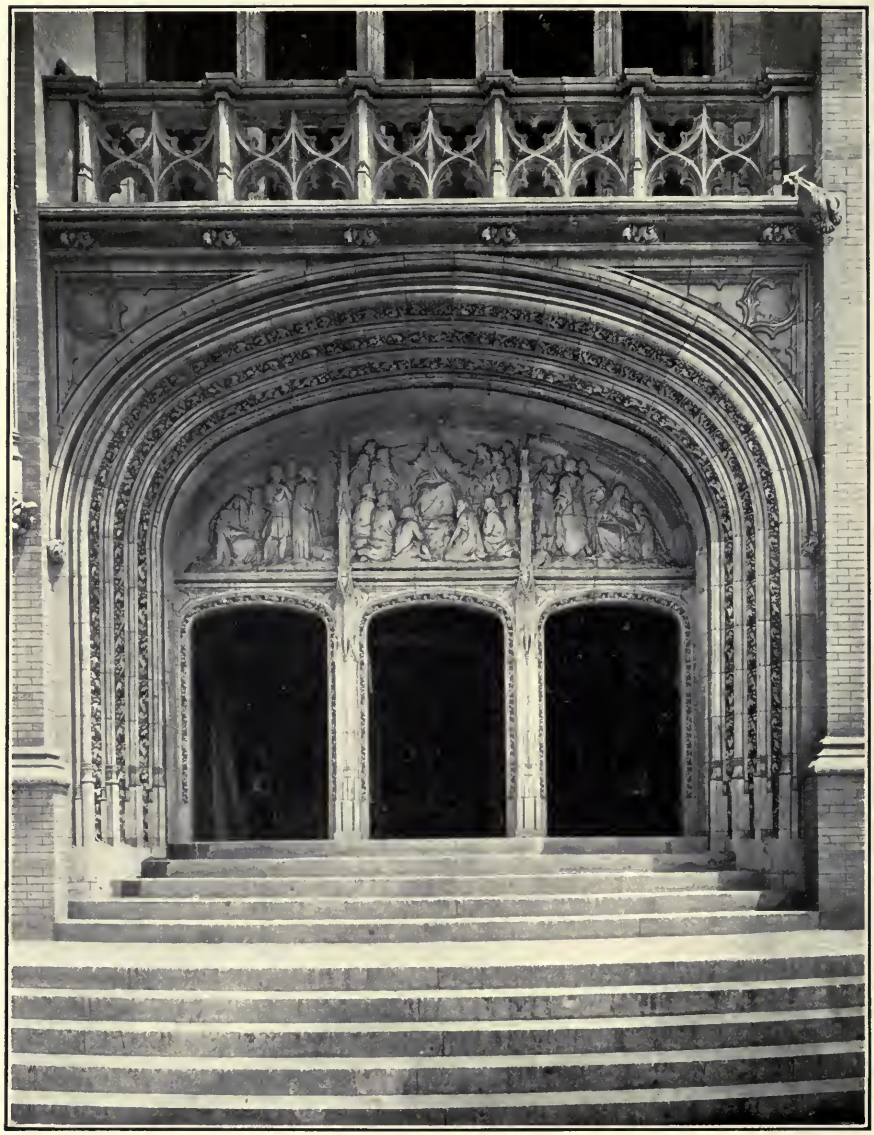
THE BROADWAY TABERNACLE.

Broadway and 56th St., New York City. Barney & Chapman, Architects.



THE BROADWAY TABERNACLE.

Broadway and 56th St., New York City. Barney & Chapman, Architects.

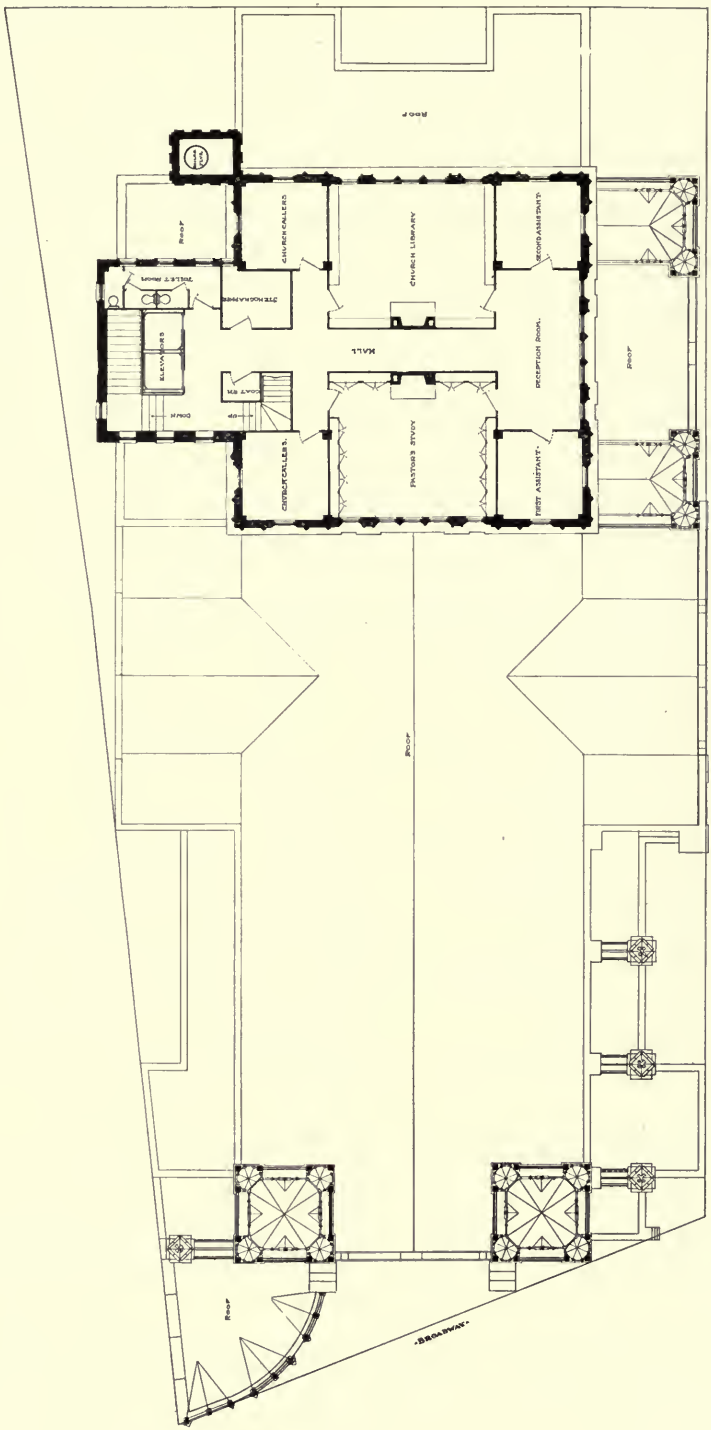


MAIN ENTRANCE—BROADWAY TABERNACLE.

Broadway and 56th St., New York City. Barney & Chapman, Architects.

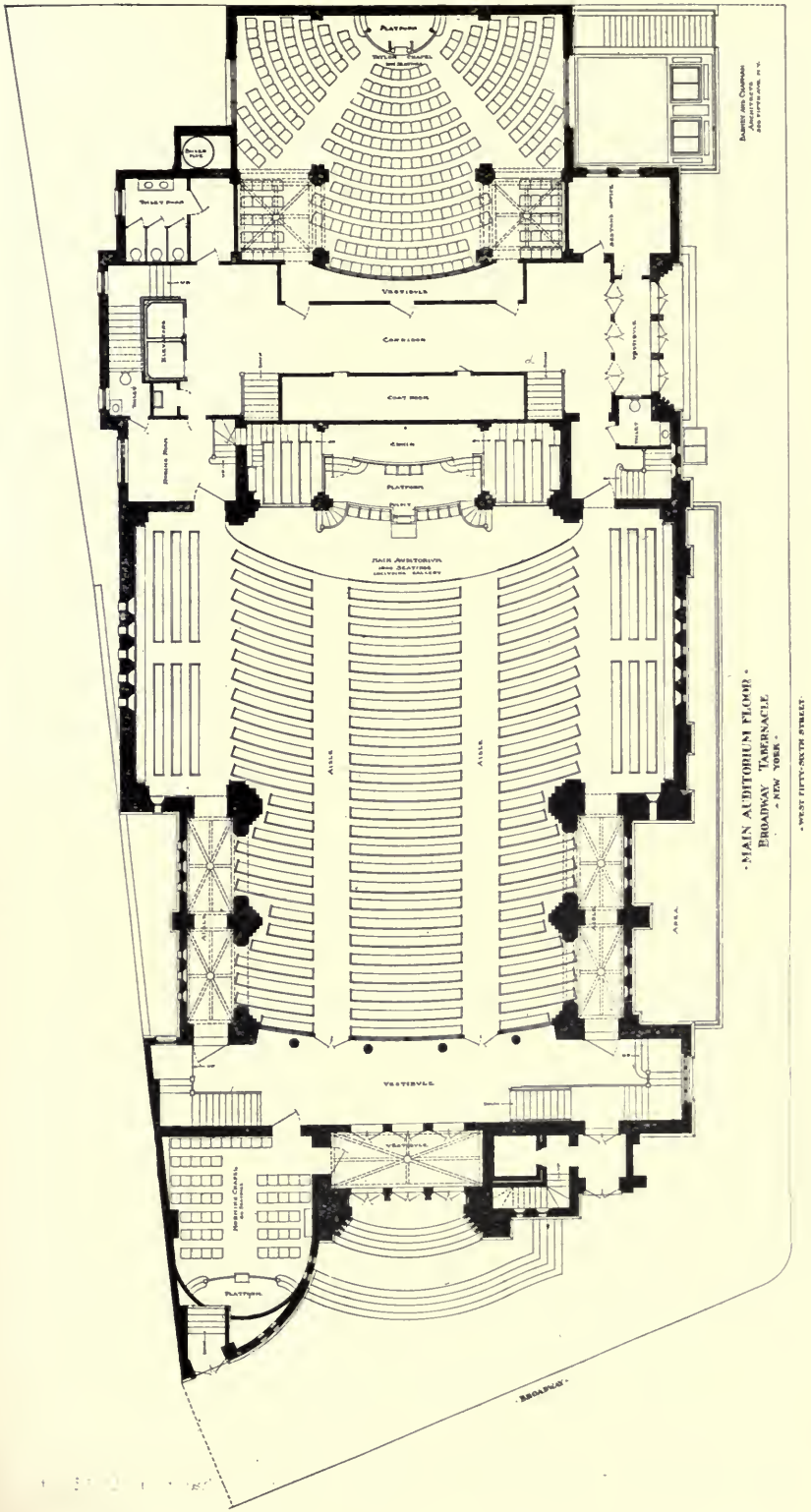
introduces them because he likes the bristling effect which they produce, an effect which unquestionably belongs to the style of his choice. What we really have a right to require of him is only that when he has occasion to deal with a new structural device, he shall deal with it frankly to the best of his ability, and not dodge it or mask it under an application of irrelevant architectural forms denoting some other construction. When he descends to this, it is obvious that he has no ethical advantage, as the English Gothic revivalists, headed by Ruskin, put it, no logical advantage, as the French revivalists, headed by Viollet-le-Duc, characteristically preferred to put it, over the common architectural practitioner who simply follows the fashion, and does not aspire to lead it. The whole question then resolves itself into one of taste, concerning which, proverbially, "non disputandum." This difference, by the way, between the French and English revivalists, is at once queer and illuminating. The attentive reader of the "Seven Lamps," on the one hand, and of the "Entretiens," on the other, cannot have failed to observe that whereas the English prophet condemns the things he does not like as eternally unrighteous, the French professor confines himself to pointing out that they are unreasonable. "Base," says Ruskin; "absurd," says Viollet-le-Duc. It is all very well for Emerson to say that Ruskin regenerated art, "as an appeal to moral order always must." But if the French revivalist had confined himself to precept, and refrained from the examples of actual design, which only showed his own lack of artistic tact, he would have had the greater effect upon the actual practitioners of architecture, who, if they are intelligent and honest men, feel less the necessity of being "converted" than that of being enlightened.

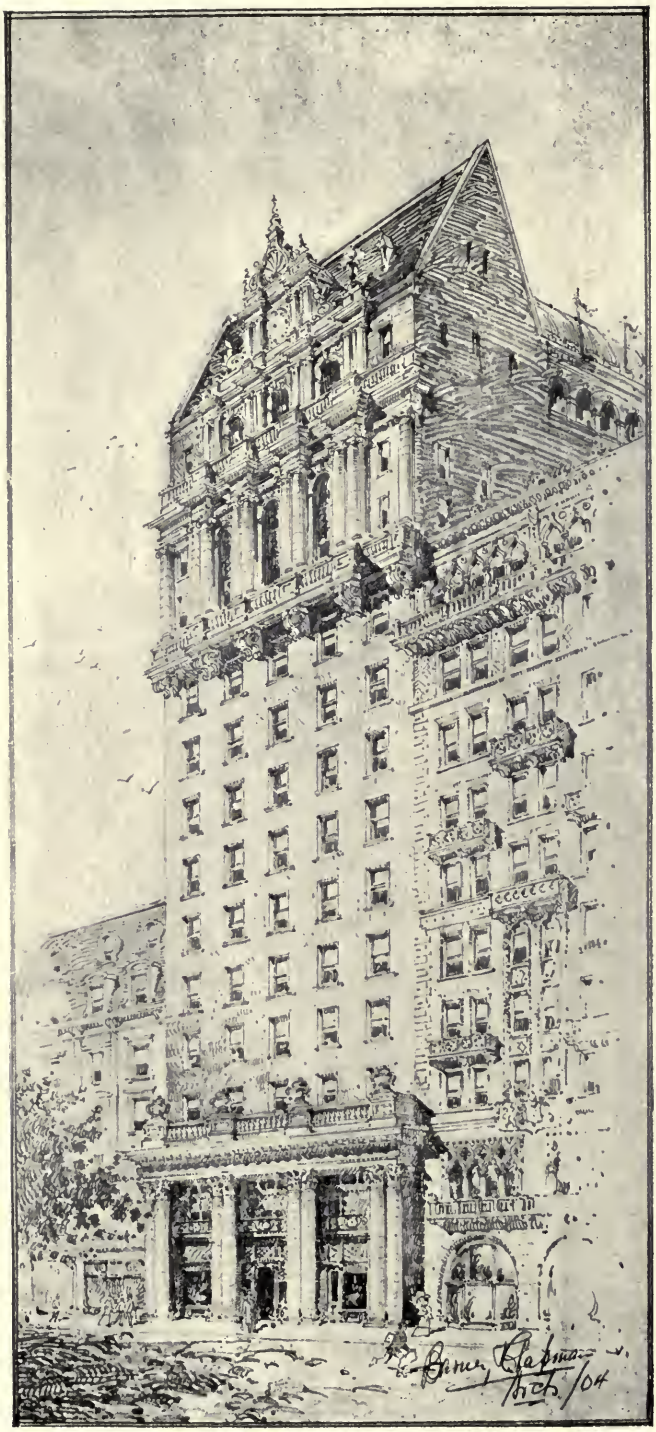
All the same, there have been some fine and inspiring careers run under the influence of and inspiration of the Gothic revival, by men who did not seem to themselves prophets, nor even professors, but who were simply practising a great art the best they could according to their lights, and taking the best care they could that their light should not be darkness. Not to speak of either the living or the dead, it is perhaps permissible to mention an architect who is, so to say, neither, being both; that is to say, surviving, but having definitely relinquished the practice of his art. I mean Mr. William Appleton Potter, whom, but for his own modest reluctance, I should long ago have delighted to celebrate in these pages. For something like thirty years Mr. Potter has been "doing Gothic" chiefly for the purposes to which the appropriateness of Gothic is commonly recognized, such as churches and educational institutions, doing it in such a way as "to keep himself out of the common controversies of the street and of the forum." Besides the actual



PLAN OF MINISTERS FLOOR
BROADWAY TABERNACLE,
NEW YORK
WEST FIFTY SIXTH STREET

BARNEY & CHAPMAN
ARCHITECTS
BROOKLYN, N.Y.


PLATFORM
VESTIBULE
COAT ROOM
PLATFORM
MAIN AUDITORIUM SEATING
AISLE
AISLE
AISLE
VESTIBULE
VESTIBULE
PLATFORM
BROADWAY
MAIN AUDITORIUM FLOOR
BROADWAY TABERNACLE
NEW YORK
WEST FIFTY-SIXTH STREET



THE NEW HOFFMAN HOTEL.

Broadway, near 25th Street, New York City. Barney & Chapman, Architects.



RESIDENCE OF OLIN L. WARNER.

No. 467 Central Park West, New York City. Barney & Chapman, Architects.



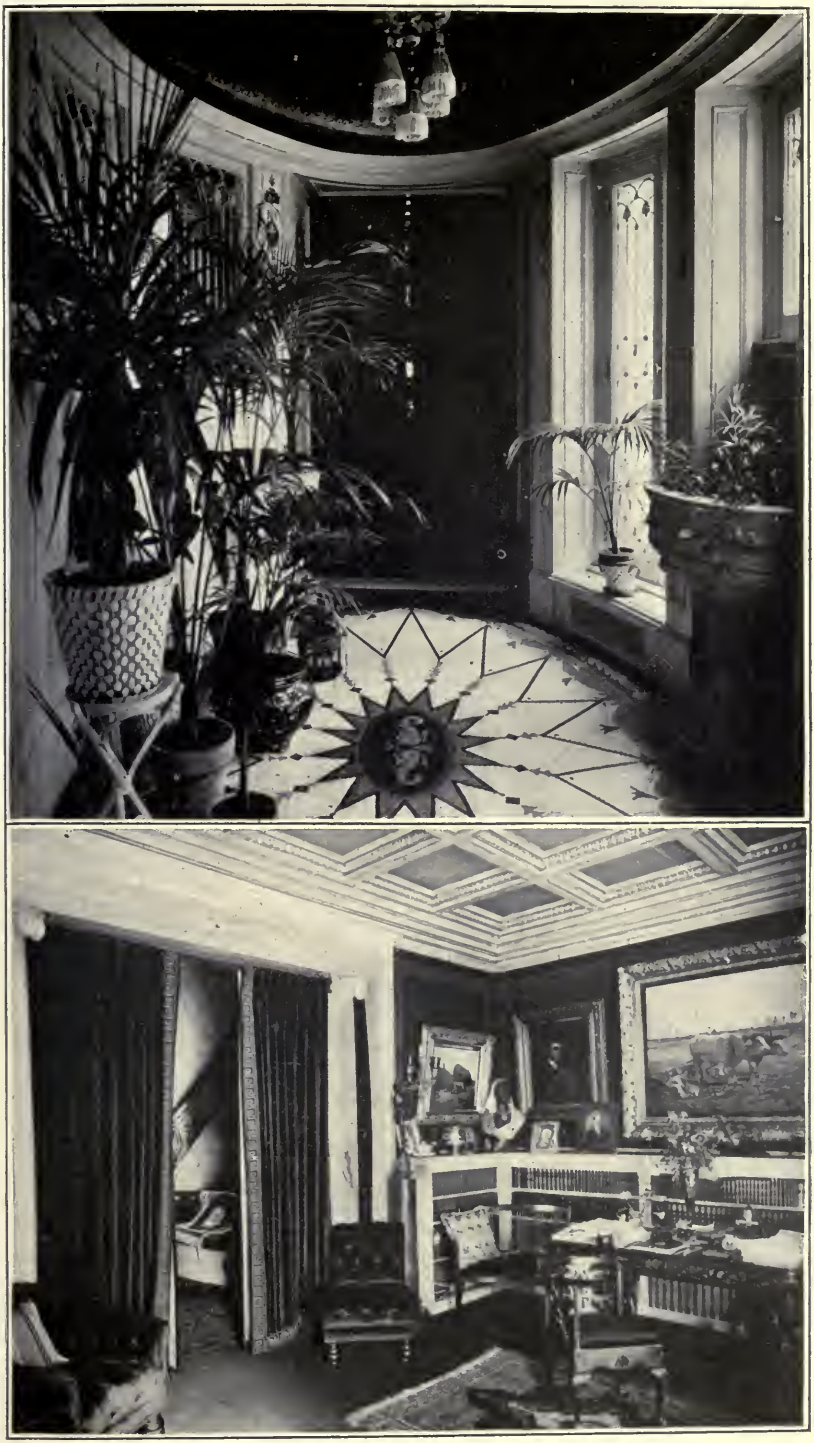
DINING-ROOM.



PARLOR.

RESIDENCE OF W. M. V. HOFFMAN.

No. 35 West 51st Street, New York City. Barney & Chapman, Architects.



VIEWS IN THE RESIDENCE OF W. M. V. HOFFMAN.

No. 35 West 51st Street, New York City. Barney & Chapman, Architects.



HALL IN RESIDENCE OF W. M. V. HOFFMAN.
No. 35 West 51st Street, New York City. Barney & Chapman, Architects.

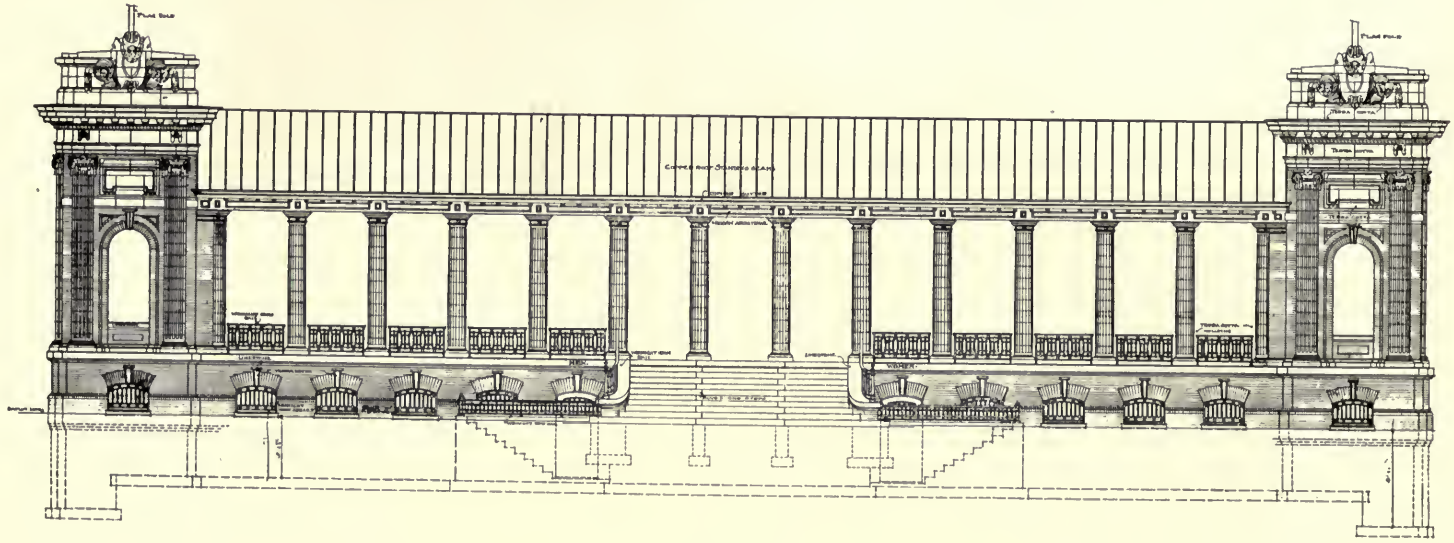


DINING-ROOM—RESIDENCE OF W. M. V. HOFFMAN.

No. 35 West 51st Street, New York City. Barney & Chapman, Architects.



THE DEN—RESIDENCE OF W. M. V. HOFFMAN.
Barney & Chapman, Architects.
No. 35 West 51st Street, New York City.



- EAST ELEVATION -
PAVILION
FOR
DE WITT CLINTON PARK -
SCALE 1/4" = 1'-0"

New York City.

Barney & Chapman, Architects.



LIBRARY IN RESIDENCE OF JAMES DE W. CUTTING.

135 East 57th St., New York City. Parney & Chapman, Architects.



RESIDENCE OF W. W. McALPIN.

No. 11 East 90th Street, New York City. Barney & Chapman, Architects.



LOWER HALL, RESIDENCE OF F. GEBHARD.
No. 6 East 79th Street, New York City. Barney & Chapman, Architects.



DRAWING-ROOM, RESIDENCE OF F. GEBHARD.
No. 6 East 79th Street, New York City. Barney & Chapman, Architects.



DINING-ROOM IN RESIDENCE OF F. GEBHARD.

No. 6 East 79th Street, New York City. Barney & Chapman, Architects.

merit of such works as Saint Agnes' Church and the Union Theological Seminary and the Princeton Library and the rest, Mr. Potter's career seems to me afford a much needed proof that in the hurly burly of contemporary architectural competition, an architect who is sufficiently so minded can pursue a really artistic professional practice, taking no more work than he can actually and personally perform, and keeping himself "hors concours."

But the citation of such an instance, and the thought of the other instances of the living which it is not permissible to cite, equally go to show that Gothic has lost its vogue, and that its present practitioners, men of middle age or more, are almost necessarily "praisers of past time." The singularity of Mr. Barney's case is that the tyranny of temperament has so far prevailed with him over the oppression of his professional training as to make him a Gothic architect, born out of due time, as it seems, since his professional training was that of the Columbia school and of an architect's office, by no means of Gothic tendencies, and his practice is not much more than a decade old.

About the first of Mr. Barney's works in the order of time, and quite the first to attract the attention of the present reviewer, was a residence-studio for Mr. Olin L. Warner, the lamented sculptor, which must have been erected by or soon after 1890 in Central Park West, near One Hundred and Fourth Street, and which sufficiently testified that the architect, or his client, was out of joint with the architectural tendencies of the time, which were divided, in domestic architecture, between the expiring throes of the Richardsonian Romanesque and the beginnings of the reproductions of the French official style, as acquired, if not inculcated, at the Beaux Arts. The modest street front of twenty or twenty-five feet, as one saw it from the avenue, or, still better, caught glimpses of it from the eminence opposite in the park, was a stranger in the neighborhood, though even less so than now, when the development of the Central Park West has been determined in the direction of apartment houses, and one was inclined to give it welcome as such, and also for better reasons. It was a well composed little front, with the masses in the right places, and with a resulting effect of solidity and walliness in spite of the modest dimensions, well bonded by the lintel-courses of the two stories, and, with the duplication in the lower, above the transom of the window and under the balcony, of the triple openings that lighted the hallway, and with the ornament, discreet in scale, sparing in quantity and refined in design, of a really decorative result. It was only the upper story, the studio, that designated the style as Venetian, being elsewhere, if one had to classify it, rather that of the French Renaissance, whereas the traceried arcade unquestionably had its origin

in the Adriatic. But it was also this crowning feature which unmistakably designated the house as also a studio, and would have designated it as a sculptor's studio if the ample skylight had been furnished with some visible means of swinging and lowering the heavy pieces of modeling to which the interior was devoted. Draw-



HOTEL NAVARRE.

Seventh Avenue, New York City. Barney & Chapman, Architects.

ings were in fact made for that purpose, but one sees that the great crane which would have been needed would have been very difficult, as least, to reconcile with the Venetian arcade, and it was very possibly the designer's insistence upon this undoubtedly pretty and effective feature that prevented him from fully characterizing his



HOTEL NAVARRE.

38th Street and 7th Avenue, New York City. Barney & Chapman, Architects.

work. For the crane implied a gable, and the feature thus formed belongs to "the Venice of the North," meaning, this time, Amsterdam and not Stockholm, rather than to that of the South, and indicates the Dutch Renaissance as the style of the wall of which it



DETAIL OF THE HOTEL NAVARRE.
Seventh Avenue, New York City. Barney & Chapman, Architects.

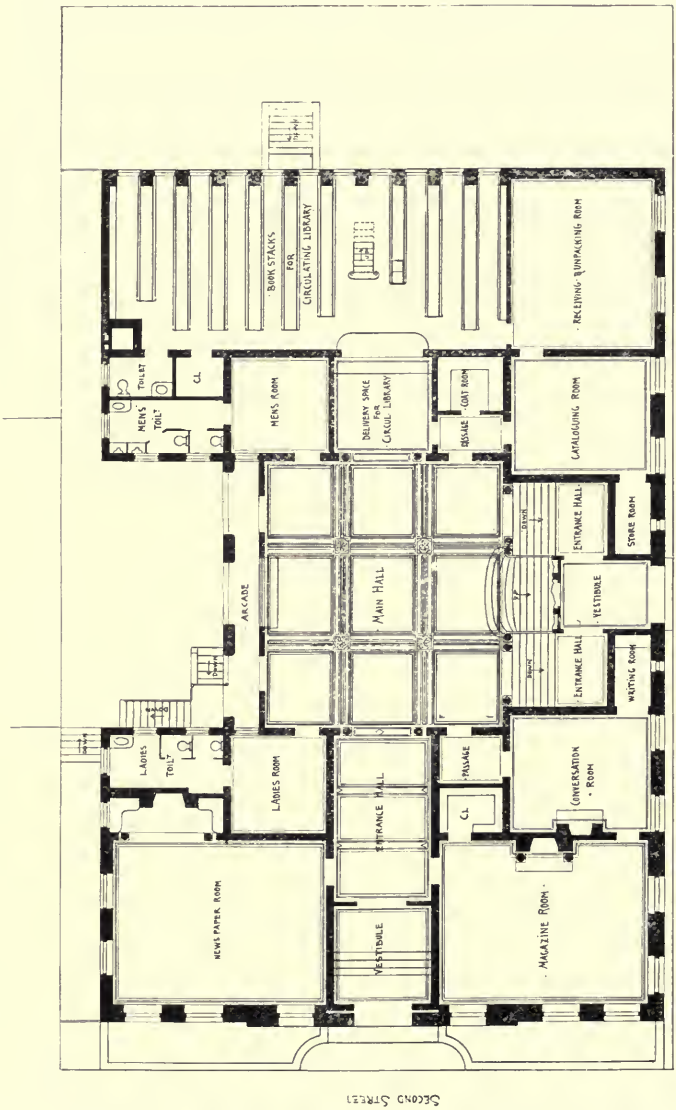
is the crowning feature. All the same the little front was not only full of promise but unusually creditable as a performance.

It is pretty evidently not what its author would do or recommend at present. Of course neither they nor their client could



DETAIL OF THE HOTEL NAVARRE.

Seventh Avenue, New York City. Barney & Chapman, Architects.



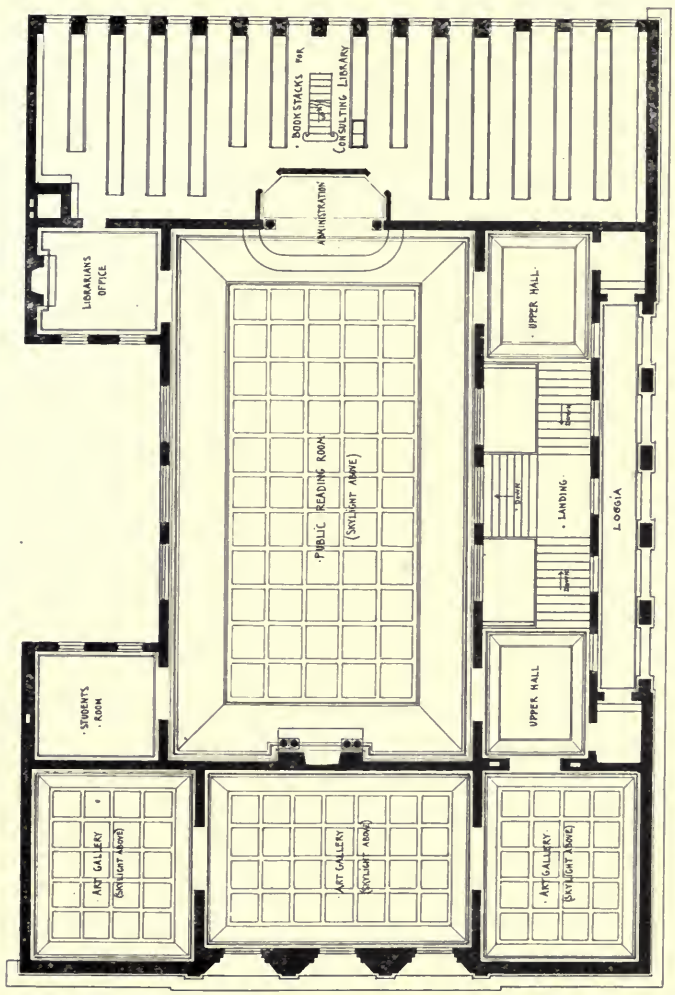
FERRY - STREET

FIRST STORY PLAN

HART MEMORIAL LIBRARY

TROY N.Y.

J. STEWART BARNEY & HENRY OTIS CHAPMAN
ARCHITECTS
1286 BROADWAY NEWYORK N.Y



FIRST STORY PLAN

HART MEMORIAL LIBRARY · TROY. N.Y.

J. STEWART BARNEY & HENRY OTIS CHAPMAN
ARCHITECTS
1286 BROADWAY NEWYORK NY.

have foreseen, fifteen years ago, what line the development of Central Park West would take, nor how lonely the little house would come to look. In a quarter of which the development is determined, and the building well under way, the obligations of comity ought to be recognized as superior to those of the architect's own preferences, and his efforts may well be limited to doing, in a general way, what his neighbors are doing, with as much more refinement than they as he may be able to command. This obligation our firm has recognized and discharged in two more recent house fronts, one in East Forty-ninth street, on the site of the old buildings of Columbia, and one on East Seventy-ninth. The former is distinctly and avowedly a design in French Renaissance, the latter more difficult to classify, being, indeed, an "example," if of anything, of "Old New York," albeit, with its swell front and its basement, with two entrances at the street level, an illustration of the newest of new New York in its lay-out. Unlike the first essay we have been considering each is an example of comity, of a desire rather to be neighborly by conformity than to attract attention by difference. Each is, at any rate a negotiable and well behaved New York street front of the early twentieth century, and one's choice between them will be apt to depend upon temperamental preferences, since one is as carefully and successfully designed; for its own purpose and in its own way, as the other. The arrangement which admits of carrying the swell to the ground with a central entrance is architecturally more eligible than that which compels the construction of the doorway on one side where it cannot without a visible awkwardness be united either with the swell above it or with the swell along side of it. And certainly one has to condole with the designer upon the practical exigencies which have prevented him, in his street front in the style of the chateaux, from crowning the edifice with a single central feature in the style of so many we remember, and has compelled him to crown it instead with two equal dormers, each of two stories, which rather contradict than carry out the arrangement and the promise of the substructure, even though this less eligible disposition is also by no means without precedent.

Apparently a much better architectural opportunity than that which is offered by the front of twenty-five feet or less which is by far the most frequent problem in the domestic architecture of New York is that of the family hotel which commonly shows at least two fronts, and occupies three or four city lots. Our firm has had such an opportunity in the Hotel Navarre, at the corner of Seventh avenue and Thirtieth street. But this, although something like 100 feet on each front, and only nine stories high, and thus by no means a skyscraper as skyscrapers are coming to go, yet, being a steel

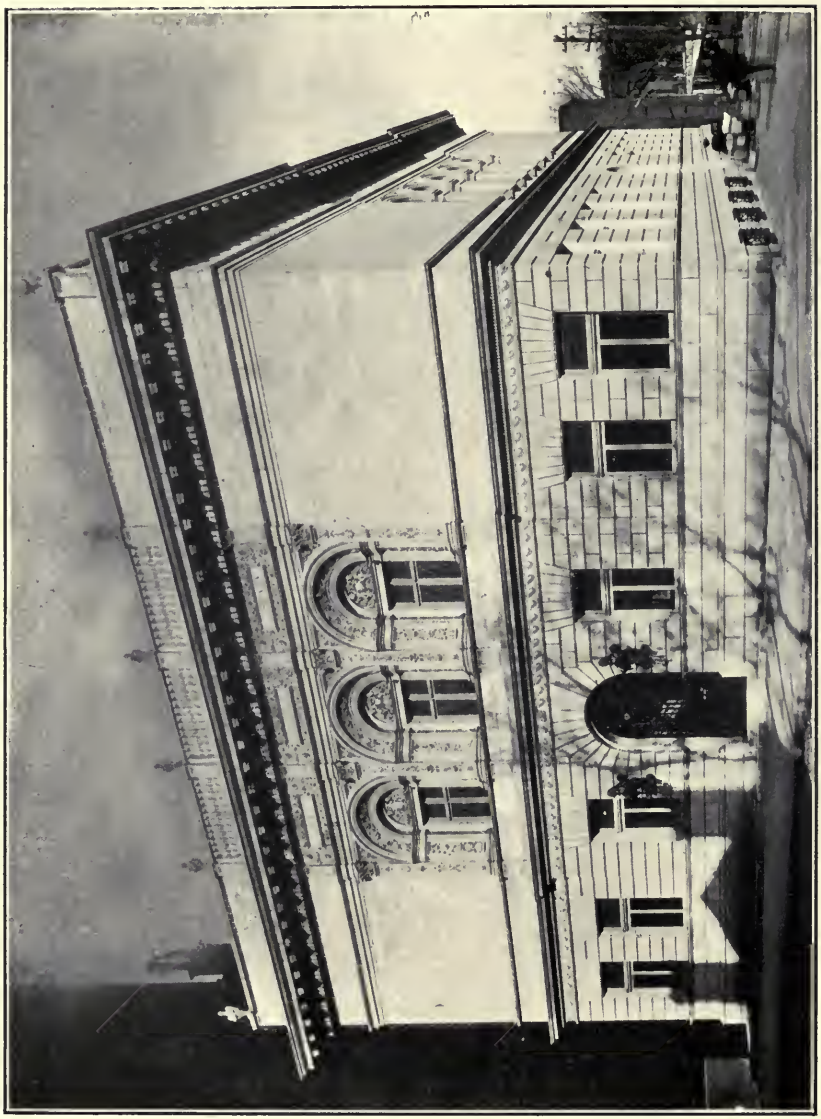
frame building, involves all the artistic problems of the skyscraper. Being, as to its visible frontages, a building of masonry, and being practically required to be for the most part enveloped in masonry, it is yet forbidden to the architect to make the effect of depth and massiveness which the use of masonry compels and invites the architect to exhibit and accentuate. The apparent wall is a mere veneer in which effective depth is out of the question, and which yet seems to forbid the exhibition of the actual and articulated structure behind it so as to gain a new and alternative source of



THE HART MEMORIAL LIBRARY.

Troy, N. Y. Barney & Chapman, Architects.

expression and effect. It is the architectural problem of our time and country what is to be done with this construction. The partial successes in its solution are thus far successes of compromise in which the architects have forborne to break with the traditions of masonry, in which they are unable to rid themselves of the effort to make the bottom look massive and appear to furnish the support which it no longer in fact furnishes to the superstructure, and do their best, with what depth of screen wall is left to them, to imitate the effect of the massiveness which has been withdrawn. The scheme of composition which aims at a base of two or more



THE HART MEMORIAL LIBRARY. Barney & Chapman, Architects.

Troy, N. Y.

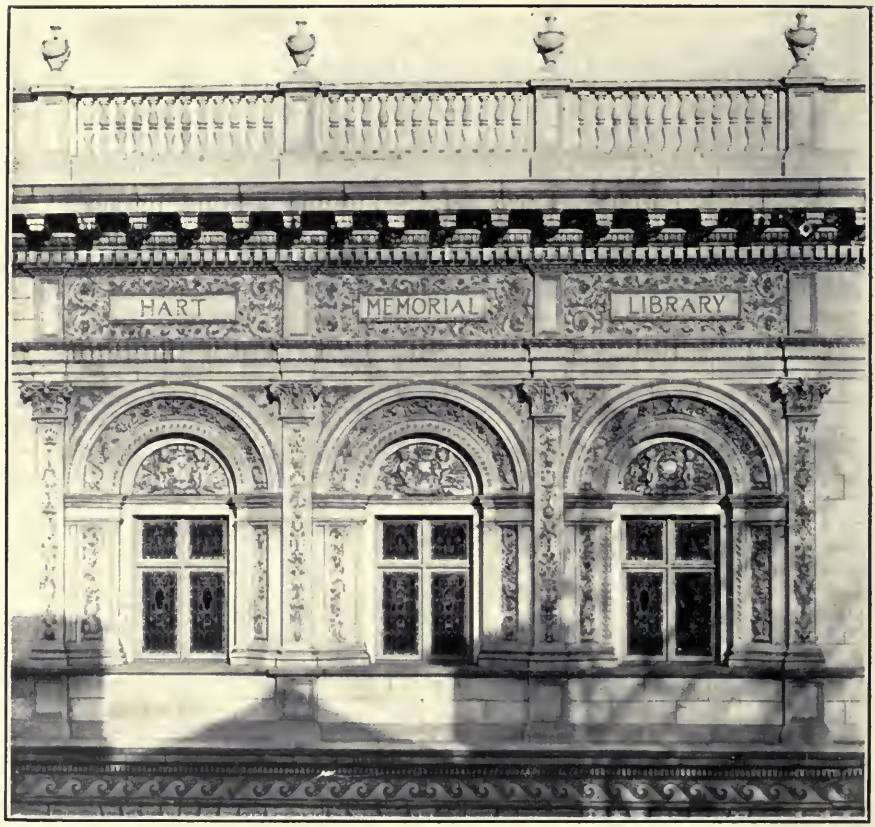


THE HART MEMORIAL LIBRARY.

Barney & Chapman, Architects.

Troy, N. Y.

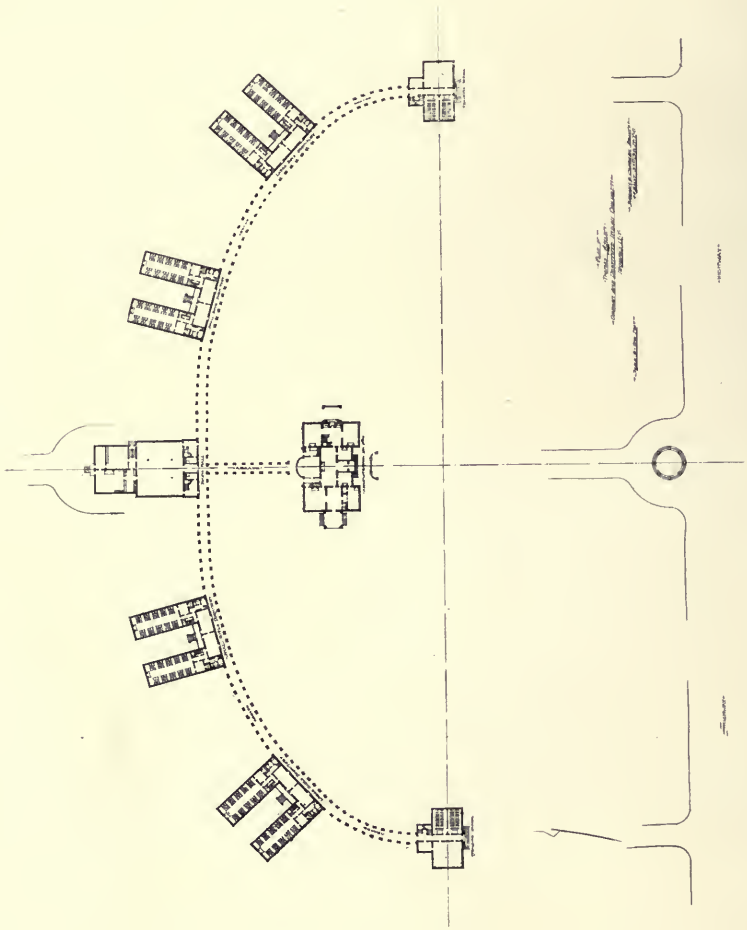
stories, a middle wall absolutely plain and unbroken except by the necessary openings, and a crowning feature as ornate and elegant as he can make it, is the scheme which has imposed itself upon all but a very few radicals. It is that which has in this case adopted, and in which it will be agreed that there has been won one of the successes of compromise which are all at which the generality of architects aim. Except for the extension upward of the main en-



DETAIL OF UPPER STORIES—THE HART MEMORIAL LIBRARY.
Troy, N. Y. Barney & Chapman, Architects.

trance, by a trellis of ornament extending over several stories, an arrangement of which I believe the first appearance was in the American Surety Building of the late Bruce Price, a work on so many accounts noteworthy in the development of the skyscraper; the four middle stories of the Hotel Navarre are of the utmost plainness, while the ornament is concentrated at the bottom and the top in as much richness as the architect was permitted to give it. The two stories of visible roof, with bristling dormers relieved

against it, may very likely have been suggested by the similar feature in the very successful building of the Washington Life, of which, in fact, the roof constitutes the success, and may almost be said to comprise the architecture. Adorned to the utmost, at any rate, the basement and the roof of the Hotel Navarre are, and to a distinctly successful result, to which the advantage taken by the architect of the plasticity of the terra cotta which is the substance of his screen wall very largely contributes. A degree of ornateness which would be extravagant in a palace in hewn stone is, in a building of much less than palatial pretensions, in terra cotta, a merely proper tribute to the facility of the material. A plain terra cotta building is almost an accusation against its architect's knowledge of his material, or else against his willingness to take trouble, an elaborate terra cotta building a vindication of both. In fact, the weakness, or the danger, of the material, its liability to distortion in baking, is brought out by any attempt to treat it with massive simplicity and dissembled by elaboration of superficial ornament, provided this be so designed as not to enable the eye to judge too readily the deviations from rectilinearity. Elaborate detail costs no more to bake than plain. Considering that all the work is moulded, and that the larger and simpler the parts, the greater the liability to visible distortion and consequent rejection, it may be said, up to a certain or rather an uncertain point, to cost no more to mould. So, in the basement of the Navarre, it is not the delicate and profuse detail so much as the blocks in which a character of massiveness almost to be called in comparison Cyclopean has been attempted, that one considering the probable proportion of rejections between the two will be apt to charge with extravagance; although, of course, he must recognize the desirableness of the plain blocks as foils to the intricacy of the superficial ornamentation alongside. There is no building in New York from which it is more evident than from the Hotel Navarre, whether in fact or in the photograph, that it is a building in terra cotta and not an imitation of or a substitute for a building in masonry, and that the architect knows and employs his material. And this, quite apart from the merits of the detail otherwise, though these seem to me equally high. Naturally and quite properly, detail of this kind in an historical style, is not "original" in the sense that it has occurred for the first time to the modern designer. But, whatever models he may have for it, he does not find it quite as he requires it, and the process of adaptation and readjustment to which he subjects it amount to redesigning. In this the success of this detail is eminent, and in nothing more than the comparative scale of the ornament at the base which is close to the eye, and at the summit where it is equally effective and telling and practically pro-



GROUND PLAN OF THOMAS ASYLUM FOR ORPHAN AND DESTITUTE INDIAN CHILDREN.
Iroquois. N. Y. Barney & Chapman, Architects.





THOMAS ASYLUM FOR ORPHAN AND DESTITUTE INDIAN CHILDREN.
Iroquois, N. Y. Barney & Chapman, Architects.



THOMAS ASYLUM.
Iroquois, N. Y. Barney & Chapman, Architects.

fuse at a distance of seven stories. There are few features in our recent street architecture so effective as this crown of the Navarre, the comparatively rich parapet, with the texture given to it by the overlay of trellis, above the severely simple attic and the still richer bristling tiara of dormers above, and few so successful compositions as the whole building, having regard to the limitations under which its designer worker. There is no pretence of "purity" in the archaeological sense, in the detail. Indeed, from that point of view, there is even a contradition between the distinctly Italian character of the detail of the base and the distinctly French character of the detail of the crown. But this frank eclecticism is more than justified by the result, of which the freshness and spirit are not gained at any real sacrifice of its "scholarly" quality.

In such a work as this, the romantic impulse and preference of the designer are as marked as indeed they are in the French Renaissance, so-called, which, if we were obliged to classify the building we should have to denote as its "style," and in which the Gothic basis is so much more essential than the superadded classicism. In another work, which aims at a much more formal classicism, the same spirit betrays itself, almost, as it seems, in spite of the designer. This is the extremely interesting Hart Memorial Library at Troy, of which the exterior is evidently but gratifyingly the result and expression of a scheme imposed by the special requirements of the case, and to be discerned in a study of the ground plans. Of course the spectator would prefer, and of course the architect would have preferred a broader pier as the terminal of the lower wall. It seems questionable whether he could not have allowed himself this luxury by uniting the two openings that light each of the corner rooms, and thus avoiding the narrowing of these ter-





THOMAS ASYLUM FOR ORPHAN AND DESTITUTE INDIAN CHILDREN.
Iroquois, N. Y. Barney & Chapman, Architects.



FIGURE ON THOMAS ASYLUM.
Iroquois, N. Y. Barney & Chapman, Architects.
Karl Bitter, Sculptor.



FIGURE ON THOMAS ASYLUM.

Iroquois, N. Y. Barney & Chapman, Architects
Karl Bitter, Sculptor.



RESIDENCE OF DR. PETER B. WYCKOFF. Barney & Chapman, Architects.

Southampton, L. I.





VIEWS OF RESIDENCE OF DR. PETER B. WYCKOFF.

Southampton, L. I. Barney & Chapman, Architects.





VIEWS OF RESIDENCE OF DR. PETER B. WYCKOFF.

Southampton, L. I. Barney & Chapman, Architects.



HALL IN RESIDENCE OF DR. PETER B. WYCKOFF.
Barney & Chapman, Architects.
Southampton, L. I.



BILLIARD ROOM, RESIDENCE OF DR. PETER B. WYCKOFF.
Southampton, L. I. Barney & Chapman, Architects.



DINING ROOM, RESIDENCE OF DR. PETER B. WYCKOFF.
Southampton, L. I. Barney & Chapman, Architects.





RESIDENCE OF DR. PETER B. WYCKOFF.

Southampton, L. I. Barney & Chapman, Architects.



LIVING ROOM IN DR. PETER B. WYCKOFF'S RESIDENCE.
Barney & Chapman, Architects.
Southampton, L. I.

minal piers to less than the width of those that flank the entrance at the center. But the fact that his second floor was to be skylighted gave him a chance for an arrangement of that story as effective as it is unusual, a very broad expanse of perfectly plain wall flanking a fenestral feature, on the longer front a loggia of five openings, on the shorter a triple window. In each case the feature is admirably foretold in the substructure, and upon each the ornament of its respective front is very wisely concentrated. The arrangement gives opportunity for the relegation to the inconspicuous rear of the "stacks" of which no architect has thus far managed to make the exterior presentable, and leaves the visible building to be treated monumentally. This arrangement, including and requiring a flat roof, almost compels the style, and even indicates the material, the white marble in which the architect was fortunate enough to be able to execute it. The central feature will recall to many observers the similar feature in the Century Club of New York, although the general aspect of the exterior much more resembles, in its effective simplicity, that of the Savings Bank in Fourth avenue, with which this has nothing of detail in common. The temptation to "let himself go" in the ornate central feature the architect has kept within bounds, and the richness of it is attended by a restraint that makes it all the more effective. The detail here and elsewhere, as in the cornice and the balustrades of the central roofs, is thoroughly well studied, in scale as well as in other points of the design, and the work, without question, is interesting and successful.

One of the best criteria of the talent and the training of a modern architect we may take to be his proved capacity for producing a work which, though of no historical style, yet has style. The heir of all the ages is necessarily, one would say, an eclectic. He must, if he be in earnest, find dispositions and devices suitable to his purpose beyond the limits of the historical style which he may have proposed to himself. When he attempts to introduce these, however, he finds it as difficult to retain "style" or to regain it, as he finds it easy by staying within the prescribed limits in which not only the formal elements, but the permissible combinations and permutations were exhausted generations before he was born. But so long as he confines himself to working in styles he is composing in a dead language and in effect acknowledging that architecture is a dead art. How to find new expressions for new notions—in this case for new materials and new modes of construction—and still to keep the effect of purity and unity, this is the problem to be solved before architecture becomes again a living art. It is a problem which presents itself to the worker in free architecture alone, since it is shirked by the worker in styles on the one hand, who excludes the novelties, and by the engineer, on the other, who



RESIDENCE OF H. H. PORTER.—GENERAL VIEW (FRONT).

Barney & Chapman, Architects.

Lawrence, L. I.



RESIDENCE OF H. H. PORTER.—MAIN ENTRANCE.

Lawrence, L. I. Barney & Chapman, Architects.



RESIDENCE OF H. H. PORTER.—LOWER HALL.

Lawrence, L. I. Barney & Chapman, Architects.



LIVING ROOM.



DINING ROOM.

RESIDENCE OF H. H. PORTER.

Lawrence, L. I. Barney & Chapman, Architects.



RESIDENCE OF H. H. PORTER.—RECEPTION ROOM.

Lawrence, L. I. Barney & Chapman, Architects.



FRONT VIEW.



REAR VIEW.

RESIDENCE OF HENRY OTIS CHAPMAN.

Woodmere, L. I. Barney & Chapman, Architects.



LIVING ROOM.



LOWER HALL.

RESIDENCE OF HENRY OTIS CHAPMAN.

Woodmere, L. I. Barney & Chapman, Architects.



DINING ROOM.



LIVING ROOM.
RESIDENCE OF HENRY OTIS CHAPMAN.
Woodmere, L. I. Barney & Chapman, Architects.



MORNINGSIDE PARK. PAVILION.

Portion in foreground to be erected at once. Portion in background (including tower) for future consideration

Morningside Park, New York City. Barney & Chapman, Architects.



NO. 40 WEST 34TH STREET.

New York City. Barney & Chapman, Architects.



PARLOR.



DINING ROOM.

RESIDENCE OF CAMILLE WEIDENFELD.

3 East 47th Street, New York City. Barney & Chapman, Architects.



RESIDENCE OF CAMILLE WEIDENFELD.—LOWER HALL.

3 East 47th Street, New York City. Barney & Chapman, Architects.

introduces them freely but without any care what the result looks like or what kind of figure he may be cutting as an artist. It is for the reason that mediæval architecture furnishes so much more help than classic, which furnishes none at all towards the solution of this problem, that it is rationally advocated as the starting point of future work. One sees with satisfaction from time to time in contemporary work examples of the kind of success I mean—of a work which has transcended the trammels of "the styles" and still retains "style." One of these one is inclined to acclaim in Mr. Barney's treatment of the problem presented by the Thomas Orphan School for Indian Children at Iroquois, N. Y.

A generation ago an undertaking of this kind, executed wherever in the United States or by whomsoever, would have issued in one huge single block of an "institution" as grandiose as the architect could make it. The change to the separate housing of each of the chief requirements of the institution was made not upon architectural but upon sanitary grounds, in the introduction of the pavilion system in hospitals, and from that extended to eleemosynary "plants" in general. The architects ought to be very much obliged to the doctors, both for instigating a system under which a more detailed and specific architectural expression was possible, and for inducing the founders of institutions to establish them where there was ample enough and verge enough to accommodate their several requirements with dignity as well as with convenience, which means that, where that is possible, they should be suburban or even rural rather than urban. These conditions are all fulfilled in the Thomas Orphan School. The pavilions are arranged in a great quadrant, connected by covered ways continuing along the fronts of the buildings a school at each end, then two dormitories for girls in one side and two for boys on the other, and at the center the common meeting place, the refectory, with the administration building in front of it. Where, as in this case, there is no inequality of surface which suggests a different arrangement, this is an obvious and rational disposition, having certain advantages over the arrangement in "quads" which is the alternative, and offering opportunities quite equal to that for effective architectural treatment. These opportunities have here been admirably employed. The "style," if we had to classify it, would have to be classified as Colonial, and, with the material used, gives the result a certain resemblance in effect to the effective group of the New York University on Morris Heights. But, in the present case, the forms proceed so naturally from the material and the construction has to give the result a very welcome home-bred and vernacular air as if the designer had never heard of such a thing as a style of architecture, but was putting together the material at his command in



HOLY TRINITY CHURCH.

Richmond, Va. Barney & Chapman, Architects.



ALL SAINTS' CHURCH.

Richmond, Va. Barney & Chapman, Architects.

the most workmanlike, which was also the most artistic manner. Of course this remark does not apply to such features as the porches with their orders, nor to such decorative features as the center of the Refectory, with its triple-stone framed arcade, over the continuous open arcade of the basement and under the triplet of dormers on the roof, nor yet to the more elaborate central decorations of the Dormitory, with its mullioned and transomed single window above the order, flanked by niched fig-



GRACE CHAPEL.

13th Street Front, New York City. Barney & Chapman, Architects.

ures and surmounted by the coach, with the triple gabled dormer above. One recognizes the historical origin of these things. But he recognizes also that the designer "has taken his own where he found it," without troubling himself about academic but only about architectural congruity, and so these things do not detract from the impression as of an inspired bricklayers attaining style by working out a style for himself. This is a rare and signal success.

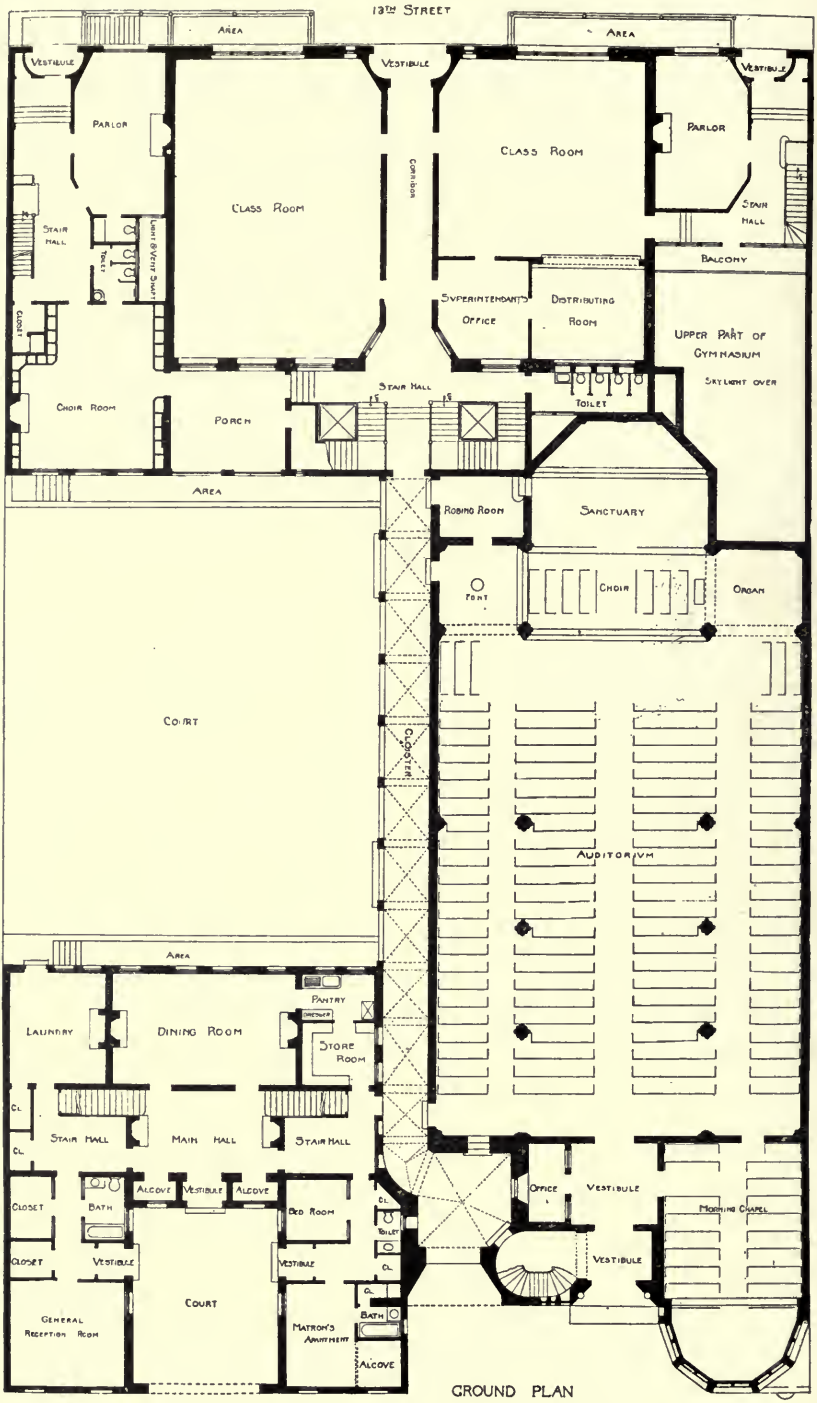
Of all the kinds of building that come in the way of a modern architect of a romantic turn of mind, one would say that a country house would be the most alluring, given the right client. For the

architect of this temper will avoid fitting the special requirements of each case to a predetermined box, and will insist upon the architectural expression of them, in which event the work is a continual challenge to his ingenuity. To say that this is the genre in which American architects, as a rule, make their chief successes, is to say that they are not deficient in ingenuity when they give it a fair chance. Evidently it has had full scope in the very pretty country



GROUP OF ECCLESIASTICAL BUILDINGS FOR THE CORPORATION OF GRACE CHURCH.
East 14th Street, New York City. Barney & Chapman, Architects.

house at Cedarhurst, of which, in this free mode of design, the architectural success may to a considerable extent be taken to attest the practical success, seeing that the practical needs have so clearly everywhere been made the basis of the architecture. In spite of the extent and costliness of the house, it is kept distinctly short of the "palatial" point, and offers a gratifying contrast to those "cottages," especially at Newport, which are merely shelters for a summer sojourn, tents pitched on the beach, so to say, but

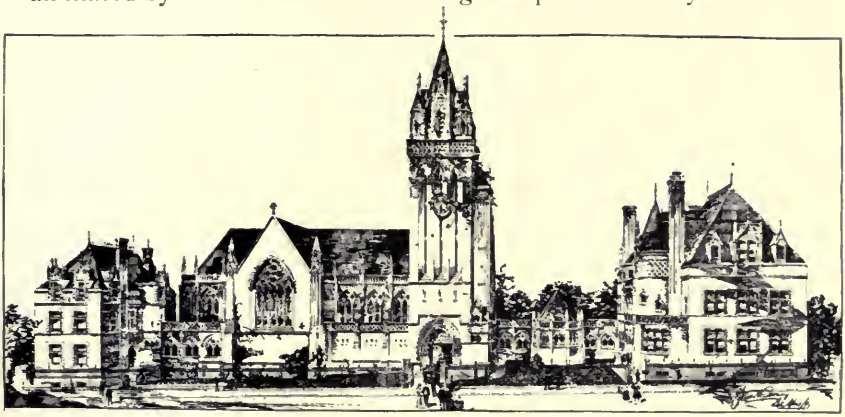


GROUND PLAN

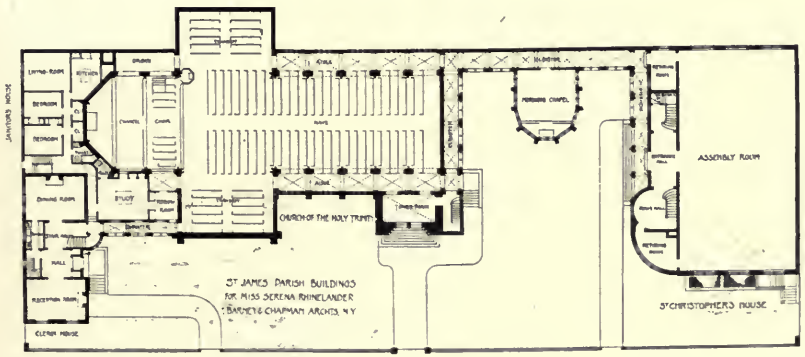
THE NEW GRACE CHAPEL AND MISSION BUILDINGS.

East 14th St., New York City. Barney & Chapman, Architects.

of which the architectural pretensions yet so far transcend both their purpose and the extent of the grounds that enclose them, of which each ought to be a park, and is only a "building lot." Architecturally, the chief success of this work under consideration, on the entrance front, is the success with which the extent of the frontage is expressed and even emphasized in the first story by the simple expanse of brickwork, while above it is diversified and animated by features which seem to grow quite naturally out of the



SETTLEMENT CHURCH OF THE HOLY TRINITY, EAST 88TH STREET, NEW YORK,
ERECTED BY MISS SERENA RHINELANDER



EAST 88TH STREET CHAPEL.

East 88th Street, New York City. Barney & Chapman, Architects.

requirements of the case. It is difficult to see how any architect can regard a rectangular and symmetrical block as more eligible than such an irregular and yet balanced and unified arrangement, at least for the purposes of a country house. The central feature here is especially successful, the low-arched balcony below, and the little loggia above, so effectively framed between the little rich gable of brickwork on the one side, and the foot of the main half timbered gable on the other, and so effectively hooded by the penthouse slope of the main roof. The well studied Gothic detail gives a



HOLY TRINITY CHURCH.

East 88th Street, New York City. Barney & Chapman, Architects.



THE TOWER—HOLY TRINITY CHURCH.

East 88th Street, New York City. Barney & Chapman, Architects.



ENTRANCE TO STAIRCASE IN TOWER OF HOLY TRINITY CHURCH
East 88th Street, New York City. Barney & Chapman, Architects.



S. CHRISTOPHER HOUSE, LOOKING WEST.—HOLY TRINITY CHURCH.
East 88th Street, New York City. Barney & Chapman, Architects.

particular piquancy to the feature. And yet one cannot help seeing that the piquancy and picturesqueness have come from the faithful following out of the actual requirements, and that the open arch, open at least in summer and apparently glazable in winter, is only a highly successful treatment of the "storm door" which so many designers find intractable, and which they finally attach to the house from which it is evidently detachable, in such wise as to deprecate all architectural criticism from it, and to waive architecture in its construction altogether.

But, after all, church building is the one branch of building that comes nearest to being abandoned by architects of all schools to



HOLY TRINITY CHURCH.

East 88th Street, New York City. Barney & Chapman, Architects.

the architects who take their inspiration from the building of the Middle Ages, of which the other building was so insignificant in comparison, or has by its slighter character so nearly disappeared that, in common speech, church architecture and Gothic architecture come very near to being synonymous. The most zealous propagandist of the most recent Parisian fashion, while he may occasionally fall in with a client facile enough to allow him to compose a place of worship in that extremely mundane and even "mondain" manner of building will commonly allow that, for churches, Gothic at least "tolerari potest." The choice is not wholly architectural, may be so on the part of the client in a small and even imperceptible degree. It was the ecclesiastical tradition that gave

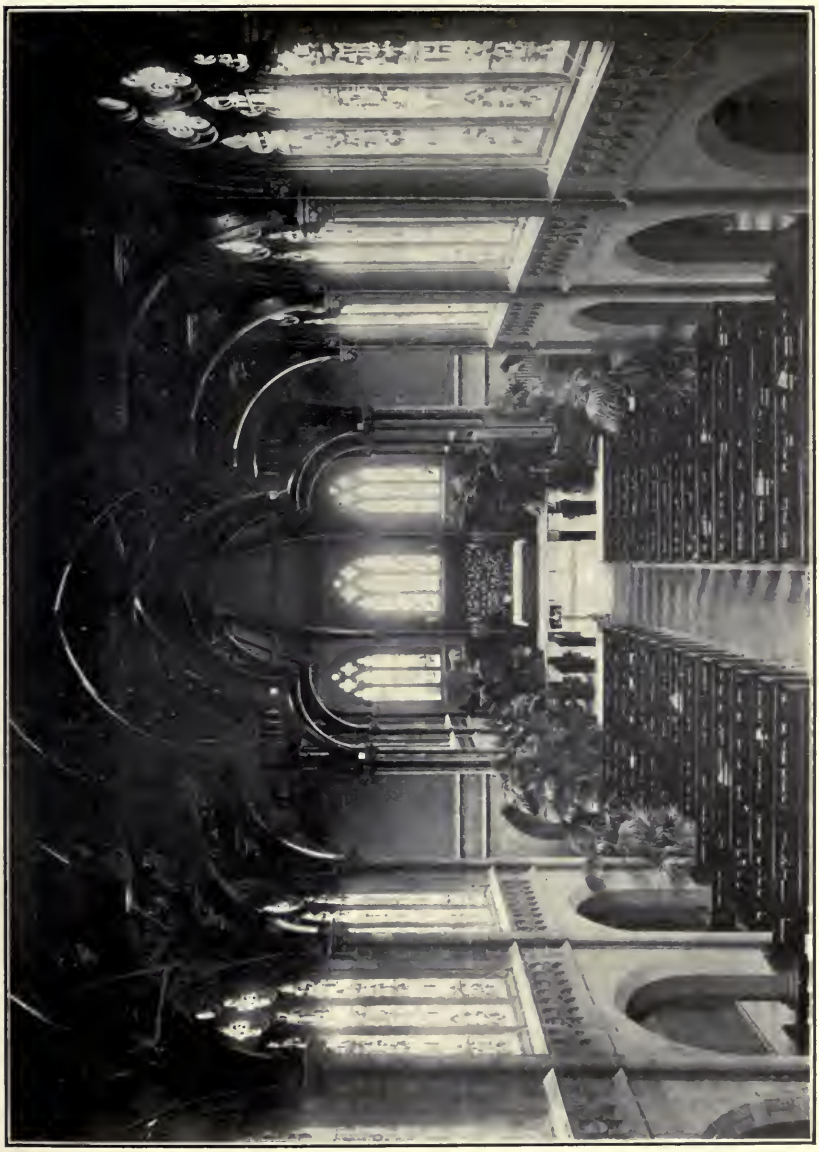


HOLY TRINITY CHURCH—NORTH AISLE, LOOKING EAST.
East 88th Street, New York City. Barney & Chapman, Architects.



HOLY TRINITY CHURCH—VIEW OF THE INTERIOR.

East 88th Street, New York City. Barney & Chapman, Architects.



HOLY TRINITY CHURCH—INTERIOR VIEW.

East 88th Street, New York City. Barney & Chapman, Architects.

rise to the Gothic revival, particularly the "Anglican" tradition, for the tradition of what is called the "orthodox" church in New England, the tradition of the "meeting house" remounts only to Sir Christopher Wren, and with the Pilgrim Fathers and their immediate successors became a distinctly anti-Gothic tradition. It remains true that the Protestant Episcopal Church has been in this country the chief promoter of Gothic architecture and was the

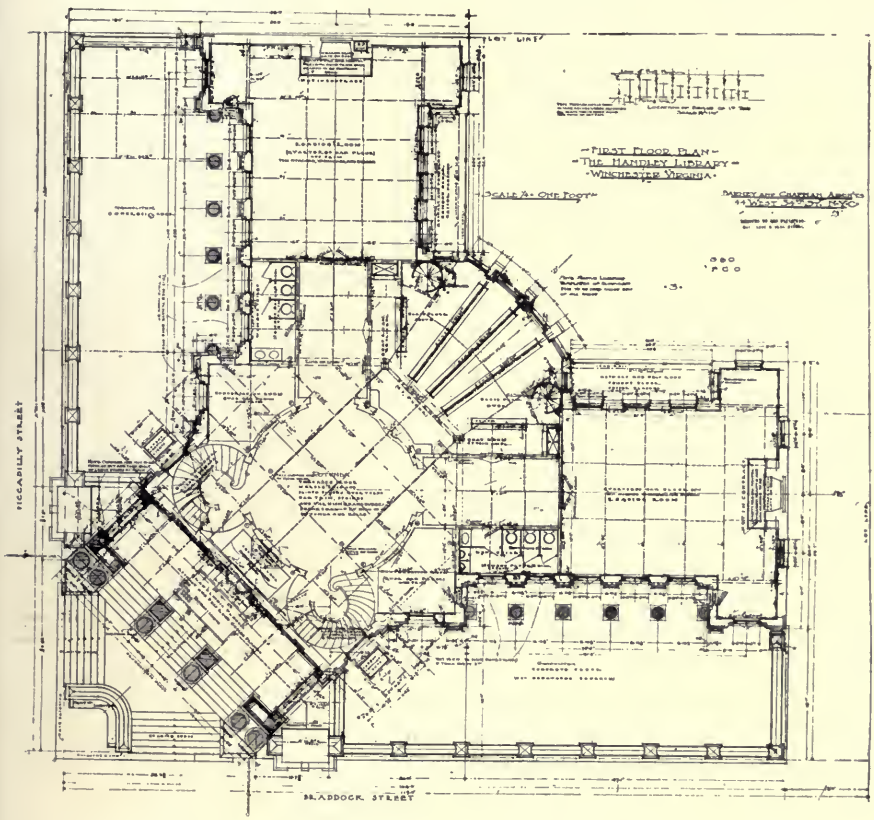


HOLY TRINITY CHURCH—ENTRANCE.
East 88th Street, New York City. Barney & Chapman, Architects.

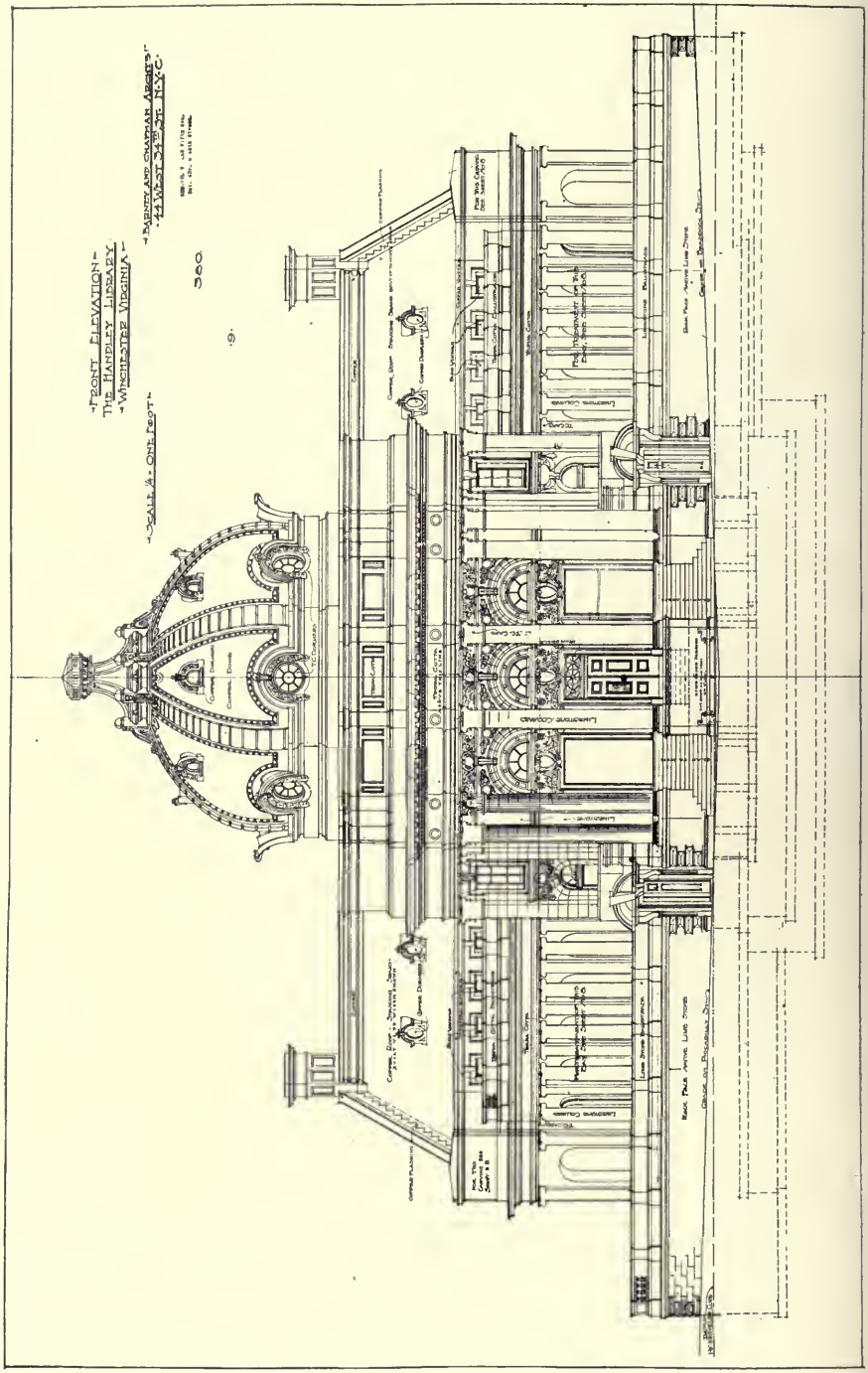
chief source of the Gothic revival. The first learned and grammatical essay in this country in Gothic, on a scale which made it impossible to ignore, was Trinity Church in New York, which, although it is approaching the sixtieth year of its completion, it would be rather rash to say has since been surpassed in the essential qualities that go to make an architectural success.

Not only can an architect addict himself to Gothic for churches without incurring the reproach of any part of his own profession.

But so great is the range and variety of the examples included under the general designation that he can produce churches which come under it and which have little other specific resemblance, while, also within the limits of historical Gothic, he can manage to express his own artistic individuality, if he happen to have any. This remark is illustrated by Mr. Barney's two churches in Richmond, Va., Holy Trinity and All Saints, both which would be pretty readily identified as his by any observer familiar with his



church work in New York, although they have little in common beyond the treatment of the tower of which their architect is so fond, the treatment of it, that is to say, as a solid and simple shaft itself of great plainness, but crowned not with a spire but with a mere belfry stage which becomes a diadem or tiara, as rich as he is permitted to make it. The ruggedness and simplicity which are the prevailing characteristics of Holy Trinity are, all the same, in marked contrast to the delicacy and richness which characterize All Saints. It would be hard to say which is the more effective in its own way and for its own purpose, for which in each case it is


FRONT ELEVATION
THE HANDLEY LIBRARY
WINCHESTER VIRGINIA
SCALE 1/8 = ONE FOOT
360
9

carefully and successfully studied. The unusual breadth of the gable of All Saists would denote that it was an "auditorium church" in which the greatest width attainable was practically desirable. Otherwise, one would say that the more usual arrangement, in which the tower is carried to the ground as a separate structure and the foot of the gable confined to the space inside of it was more eligible than that adopted, which, to be sure, has the architectural advantage of visibly and effectively framing



THE HANDLEY LIBRARY.

Winchester, Va. Barney & Chapman, Architects.

the projecting chapel which is so effective a feature and so thoroughly carried out in detail.

But, after all, the advantages of Gothic, even for ecclesiastical purposes, are less evident when the question is of a single church building than when it is of a parochial "plant," a group in which the flexibility of the style permits the architect to dispose all the members of his composition to the best practical advantage, and to enhance the inherent effect of such a disposition by the most directly expressive treatment. Mr. Barney has had in New York



THE REVILLON BUILDING.

13 and 15 West 28th Street, New York City. Barney & Chapman, Architects.

two opportunities of this enviable kind, albeit they are removed by their situations from the usual observation of persons interested in architecture, but may be more useful on that very account. One is Grace Chapel, including a hospital, a parish house and a clergy house in far eastern Fourteenth Street, and the other the Church of the Holy Trinity, including a rectory, or rather a "vicarage," and a parish house, "St. Christopher's House," in far easterr Eighty-eighth. Architecture is not "civics," but one may be allowed in an architectural review to express the wish that instead of two there might be twenty such centres of civilization on the East Side of New York, as there are many more than two in the East End of London, of which several, notably those designed by James Brooks, are as noteworthy architecturally as the two designed by Mr. Barney in New York. One hesitates to say that either of these most interesting works is architecturally superior to the other, considering the respective conditions and limitations. The later and richer, the Church of the Holy Trinity, however, has the adventitious advantages of a far more liberal allotment of ground for its purposes and of a far more liberal appropriation, with, naturally, a corresponding increase of effectiveness. As both these have been reviewed by the present reviewer in the present periodical, and in some detail, he may refer the reader who cares for more information about them than the illustrations afford to No. 6 of Vol. XIII. of the Architectural Record. But he may be permitted to repeat the judgment he there gave that the works in question "show such a strong and subtle artistic sense as is manifested in few indeed of the buildings of Manhattan Island." And the success of them seems to denote the applicability of the style in which they are composed to other than ecclesiastical uses, to all uses, indeed, where a group of buildings has to accommodate itself to a varying terrain, and the Procrustean method of design is manifestly inapplicable. It would have been extremely interesting to see, for example, what Mr. Barney would have done with that project for the enlargement of West Point which, to be sure, we all admit is in excellent hands as it is, but which seemed to call for precisely those qualities which he had exhibited in the design of these two parochial plants in New York.

A third, and a much more startling solution of the problem, presented by the parochial plant is now nearing completion in New York. It is startling because it is the first attempt to apply to such a plant the modern facilities of the elevator and the skeleton construction. Some ten years ago, indeed, an attempt was made in the parochial plant of St. Mary the Virgin to apply the steel frame to ecclesiastical uses, in what became known as a "Chicago church." But in that case the modernity consisted merely in employing the

modern appliance to the support of a system of apparent vaulting, and neither in general nor in detail can that work be acclaimed as a success. The present case that of the Broadway Tabernacle, driven a mile up-town because its old quarters were submerged by business, and become both too noisy and too costly to be available for its further occupation. The novelty, in the new quarters, is not in the church but in the appendages. It is a frank attempt to take advantage of the new construction, not in the sacred edifice itself, but in its "temporalities," and to make up, in the accommodation of these, by altitude for the area that is lacking. Stated in words this programme is doubtless horrifying enough to the architect of tradition. But stated in terms of architecture, as it is in the plans and drawings herewith shown, is there really anything repellent about it? Nay, is it not distinctly more attractive, in some respects, than the traditional treatment would be in such a city as New York has grown to be. Poor old Trinity, a generation ago a landmark visible and conspicuous from the Orange hills, now shrunken by the greedy skyscrapers crowding in to get a gleam of light and a breath of air from the open spaces of its churchyard, how can one fail to resent the indignity which has been put upon it? And the case is typical. Not only can a church no longer afford, in a crowded American city to take the area necessary for the carrying out of a parochial plant in the old way, and spreading its apparatus of evangelization over the space it needs, but if it could do so, its edifices would be overshadowed and belittled by the altitudinous Mammon. The remedy is obvious. Let the church also go into the competition of aspiration. Let her, as Burke has it, "exalt her mitred front" and pile up her provision for spiritual needs, tier above tier.

In any case, this responsibility is not the architect's. It were a very "cynical asperity" to hold him responsible for his problems. He is rightly responsible only for his solutions. Given the necessity of accommodating the requirements of a metropolitan church on a strip of land much too small to accommodate them after the old ecclesiastical fashion, and how has our architect handled it? It seems to me that he has handled it so well that it would not occur to anybody to be shocked by the result who was not resolved to be shocked beforehand; on the contrary, that the uncommitted spectator must be impressed not only with the beauty, but with the appropriateness and "churchliness" of the result. The difficulty of the problem of superposing the various provinces of parochial work, instead of grouping them on the same level, was much enhanced by, or at least it was much complicated with, the necessity of adjusting the structure to an unusually irregular plot, showing not only the irregularities resulting from the anomalousness of

Broadway in our street system, but also a special irregularity resulting from the fact that the North line of the lot is parallel or "normal" to no other. These irregularities are the despair of the architect of academic conventions, who ought to hail the street system of Manhattan as a great labor saver. They are the opportunities of the practitioner of free architecture, upon whom it is laid to overrule them into sources of architectural interest and beauty. In the present case, the irregularity of the North line is made available for the lighting of the North side, and its protection against whatever darkening skyscraper may come to be reared against that line, while the complication of irregularities has enabled the architect to adjoin to the church the little chantry at the North end of the front for which various practical uses suggest themselves, but which is quite its own excuse for being, in an architectural sense, by the variety and picturesqueness which it adds to the pile.

The general scheme is that of a decorous and well-behaved, though individual and interesting, Gothic church, having picturesqueness and interest added to it by the skilful advantage taken of the irregularity of the plot on which it stands, is completed, including transepts, but excluding the choir. The place of this latter is taken by a large tower, spreading at the base into transepts of its own, behind those of the church, and rising like a huge cimborio to the height of ten stories, frankly shown as such, and frankly devoted to the secular uses of the church. Although it has most evidently been evolved from the exigencies of the special case, this disposition gives the scheme a general resemblance to Trinity Church in Boston, especially since the West front of that church, the architectural West front, has been added. The one is carried out in the vigorous and massive Southern Romanesque which its author imported, and strove so hard, and at one time as it seemed with so much prospect of success, to domesticate: the other in an advanced and elaborate Gothic, advanced in some places to the verge of the French Renaissance. There are diversities of operations, but the same spirit. The Tabernacle may be described, roughly, as a Trinity minus the apse, but plus an additional transept. It is the cimborio that gives the resemblance. And if the elevator had been developed to its present usefulness thirty years ago, when Richardson planned Trinity, is it conceivable that he would not have seized the opportunity to give still greater predominance to his central feature? Even as it is, he has divided his belfry stage into two stories without any justification in the interior arrangement, and simply upon architectural grounds.

Doubtless the double transept is the questionable point in the Tabernacle, the double transept with the addition that the de-

signer has treated the transept which denotes the temporalities more ornately than that which denotes the spiritualities, that his uncomely parts may have more abundant comeliness. Pretty clearly there is a defect of expression here. But how admirably the cimborio "crowns the edifice" How well studied its relation to the smaller Western towns, which from the proper point of view, count as its pinnacles. How successful is the choice and combination of material, the pale buff of the brickwork with the pale gray of the terra cotta. How full of life and spirit is the modelling of this latter, really recalling the old work in comparison with the lifelessness of so much of most modern Gothic. In all these ways it seems to me to show the progress we have a right to look for, to be the best thing its author has yet done.

And there is no doubt at all that it is a pioneer which is destined to have followers. The practical advantages of the arrangement are such that it will impose itself upon even those architects whom the novelty of it now most horrifies. "Soyez de votre siecle" is the legend that is writ large in this tower. As a matter of careful and skilful composition, and as a matter of scholarly and spirited detail, it promises to be one of the most effective of its author's works. With this compound of tradition and revolution we may fitly close this survey of the work of an architect whose performance is already very considerable, but of whose work a main interest remains in the promise the performance gives that he has not yet done his best work nor said his last word.

Montgomery Schuyler.

The
Architectural Record.

VOL. XVI. OCTOBER, 1904. NO. 4.

DWELLINGS OF THE MIDDLE WEST.

OF all the types of private dwellings now being erected in this country there is none which presents more features of interest and promise than the semi-suburban residence erected in and near the Western and Middle Western cities. The suburban house in the East is rarely so interesting and typical. Of course there have been many expensive and carefully designed dwellings of this class erected in and near New York and Boston; but the immense majority of suburban and semi-suburban houses built around the cities along the Atlantic coast line are cheap houses, designed by local builders, while the better-to-do people generally live in houses that lose their individuality in the block. On the other hand, in cities like Buffalo, Cleveland, Cincinnati, Detroit, Milwaukee, and even Chicago,, the comparatively excellent means of communication and the comparative cheapness of accessible land have encouraged a much larger proportion of well-to-do families to live in detached houses, and the very recent popularity of motor-cars has rendered houses of this kind still more practicable and accessible. They have certain definite characteristics. They are built by the owner from designs prepared by the best architects in the vicinity. The amount of land by which they are surrounded varies between a hundred feet and several acres. As they cost on the average somewhere between $25,000 and $50,000, they represent precisely the ideas, the tastes and the standards of the prosperous American business man. Such a man cannot afford and generally does not want the exotic palatial splendors of the Eastern millionaire. What he wants is a very comfortable house, the looks of which are, as they should be, subordinated to convenience. but which, nevertheless, is supposed to have some aesthetic merit, and this comfortable atmosphere is largely derived from the modest and unambitious scale of the whole performance. In the big house of the East comfort and

Copyright, 1904, by "Architectural Record Company." All rights reserved.
Entered May 22, 1902, as second-class matter, Post Office at New York, N. Y., Act of Congress, of March 3d, 1879.



FIG. 1. THE KIP HOUSE. Henry Ives Cobb, Architect.
Orange, N. J.



Roslyn, L. I. FIG. 2—RESIDENCE OF CLARENCE MACKAY. McKim, Mead & White, Architects.



Roslyn, L. I. FIG. 3.—RESIDENCE OF CLARENCE MACKAY. McKim, Mead & White, Architects.

propriety are sacrificed to the "stunning" effect. In the better Western house of the prosperous business and professional man the intention of the owner is to build a dwelling in which he and his family shall be both in the picture and thoroughly at home.

It is the purpose chiefly of this number of the "Architectural Record" to illustrate the interiors of this class of dwelling. The illustrations are by no means confined to the class mentioned. On the contrary, a considerable number of reproductions are given of Eastern houses of a more grandiose and pretentious character, and these illustrations have been included for the particular purpose of enabling readers to contrast one of the two classes of residence with the other. But by far the larger number of houses illustrated are of the type described above. They probably come nearer to representing the average American taste of to-day than do the examples of any other class of building which could be collected, and the merit of the result, consequently, is a matter of a good deal of interest.

The aesthetic quality of these houses may perhaps best be described as containing the usual American mixture of excellence in intention coupled with miscellaneousness of effect. These houses are eminently comfortable; they are eminently "homely," and at the same time they are eminently "bourgeois." One can trace their descent unmistakably from the mid-century residences of the Eastern part of the country, which embodied the taste of the average well-to-do American of that time, rather than the taste of specially trained and instructed people But there is one important difference between the two types of dwellings. The mid-century dwelling was rarely the work of a well-qualified architect. The contemporary dwelling of the Middle West is the work, so far as the design and the plan is concerned, of the qualified architect, but in this modern instance the architect is rarely in a position to do a completely finished job He designs, of course, the exterior and proportions the openings, the disposition and the detail of the various rooms; but beyond that the decorations and the furnishings of the dwellings, are the work either of the head of the house or of some decorating company. As in the latter case the decorating company adorns and equips the rooms to suit the taste of the client, the total effect is one which represents the average taste of well-to-do people rather than the higher taste of those who are specially trained.

The total effect, consequently, generally lacks the architectural quality, the quality of careful composition, of the subordination of detail to a single dominant idea, and of the careful search for stuffs and furnishings which give distinction and integrity to the room. The impression one gets in the majority of cases is overwhelmingly



Roslyn, L. I. FIG 4.—RESIDENCE OF CLARENCE MACKAY. McKim, Mead & White, Architects.



Roslyn, L. I. FIG 5.—RESIDENCE OF CLARENCE MACKAY. McKim, Mead & White, Architects.



FIG. 6.—BILLIARD ROOM IN THE RESIDENCE OF CLARENCE MACKAY.
McKim, Mead & White, Architects.
Roslyn, L. I.

that of upholstery—of apartments that are overcrowded with big stuffed chairs, heavy, spacious tables, curtains and coverings that jump out in large flowery patterns, and many other comfortable and commonplace things; and such is the effect, in spite of the fact that the intention evidently is to do something good. Indeed, the rooms, in spite of their homely appearance, have also the air not only of trying to be artistic, but of seeking to conform in their artistry to the latest aesthetic ideas. The result of these conflicting tendencies is colonial rooms without a trace of the colonial reticence and distinction. The colonial furniture is machine-made, and is either too clumsy on the one hand or, on the other, too cheap and fragile. In spite of the considerable sums of money which have been spent on some of these houses, the effect is generally that of a very commercial decorative art—commercial not in the excellent economic sense of obtaining a good result at a small cost, but in the unfortunate sense of obtaining a poor result at comparatively high cost.

The employment of professional decorators is partly responsible for this result. It is very rarely that effective interiors can be obtained by making different designers responsible for the architecture and the decoration of a room. One man or one firm should do all the necessary designing, and the function of the professional decorator should be to carry out the architect's ideas. Within these limits the decorators can perform an important and, indeed, an indispensable work, because by their control of capital they can collect large amounts of good decorative material which the architect can use. But American interiors will never be what they should be, until it becomes customary for the architect to see the design through to the end; and this is so not only because there is no other way of obtaining unity and integrity of effect, but because the architect, whatever his limitations, alone represents a good aesthetic tradition. The American business man and his wife have, of course, no aesthetic traditions at all, and no informing attitude towards such matters, except the wish for cheerful and comfortable surroundings. The professional decorator may have in his employ designers as competent as the average architect, but he has the fatal defect, for the purpose of good aesthetic results, of lacking the professional tradition of disinterestedness. He is in the business to make money, and in order to make the money he cannot run ahead of his clients' tastes. Neither can he sacrifice, as a designer must occasionally do, the profit on a job to the necessity of repairing a mistake or reaching a better result. He may know better, but he cannot afford to risk his business and spending his time in taking care of his clients' aesthetic education. He works entirely by routine, and he accomplishes the sort of thing we see.



FIG. 7.—BEDROOM IN THE RESIDENCE OF CLARENCE MACKAY.

McKim, Mead & White, Architects.

Roslyn, L. I.



FIG. 8.—MANTELPIECE AND PANELLING IN THE RESIDENCE OF CLARENCE MACKAY.

Roslyn, L. I. McKim, Mead & White, Architects.



FIG. 9.—LIBRARY IN THE RESIDENCE OF REGINALD DE KOVEN.

Washington, D. C

Nevertheless, whatever the defects of the kind of dwelling illustrated in this number of the "Architectural Record," the prospect for a gradual improvement of design is full of promise. The architect is constantly growing in authority, and in time he will be able to control the planning of dwellings from the foundations to the finish. Wherever he succeeds in accomplishing this the result should be good both for him and for his clients. His clients have every right to insist that their houses shall be not merely conveniently planned, but shall also be pleasant to inhabit. We have no sympathy with the aesthetically austere and ungracious rooms which some architects seek to force on their clients. The demand for a cheerful, comfortable and homely atmosphere in a dwelling is absolutely a legitimate demand, just as the demand that the interior should be thoroughly designed is also legitimate; and it is the action and reaction between these two demands which will most effectually serve to give American interiors the mixture of propriety and distinction which they need. At present distinction is too often obtained at the expense of propriety and comfort, and propriety and comfort too often obtained at the expense of distinction. In order to combine distinction with propriety the architects will have to educate their clients to add to their houses a pervasive individual and familiar atmosphere without interfering with the integrity of the design; and he will also have to live up to the highest standard of professional and technical rectitude. His great advantage consists or should consist in the fact that he wishes to control the whole design in the interests of his client; and if he swerves from this high technical and professional ideal, he will not obtain his full rights.

FIG. 10.—SITTING ROOM IN THE RESIDENCE OF JOHN B. DRAKE.
Calumet Ave., Chicago, Ill. Howard Shaw, Architect.



FIG. 11.—HALL IN THE HEALY HOUSE.
Chicago, Ill. Myron Hunt, Architect.

THE HALL AND THE STAIRS.

I.

THE growth and development of the "hall" in the American house is rather a curious thing, for whereas, in the house built previous to 1860, the hall was, in nearly every case, an entry exclusively, it has since become, in many cases, a recognized sitting room. The entry of the old-fashioned house was wider or narrower as the dignity of the house might seem to make necessary, and where wide it might contain a sofa, and on very hot days of the North American summer might well furnish a place to sit and enjoy the breeze. Yet it still contained the "hat-rack" and the "umbrella stand"; it still had, to light it, only the open door and the narrow "side lights," and it was still furnished or left unfurnished as a passage-way alone. The floor would be covered with oilcloth, the walls would affect a surface of uniform tint or perhaps imitate in the papering blocks of stone or marble. The stairs went up at one side against the wall with no pretence at shutting off or concealment.

Since the close of the Civil War there has been a disposition in country houses to make the hall square and spacious, even if by so doing the other rooms of the house on either story are somewhat crowded or are diminished in number. It seems to be assumed that the hall is a sitting room so desirable in itself that something should give way to this disposition. Even in the cities and in the deep and narrow houses used there, with windows only in the narrow walls of the front and rear, this same arrangement of a square hall has been popular, and although in that connection many householders object to it altogether, many again are found to use it and even to advocate its introduction.

When, however, the hall is to be treated as a sitting-room, it becomes altogether desirable to shut the staircase off and separate staircase from hall by a screen or by something more than a screen, namely, by a solid wall with an opening more or less wide. The door itself may not be hung in this opening—it may be better dressed by hanging curtains (portières); but at all events the two apartments are better when entirely distinct.

In this paper the term staircase is used in the sense given in the Dictionary of Architecture and Building as meaning "the structure containing a stair," the "stair together with its enclosing wall." In this sense, then, it is here maintained that staircase and hall should be separated as far as the size of the house and the disposition of the plan will admit.



FIGS. 12-13.—HALL IN THE HOUSE OF J. T. PIRIE, JR.

Evanston, Ill. Myron Hunt, Architect.

Thus in Fig. 11 there is indeed no way visible of closing the opening between the two apartments, but otherwise the plan is an ideally good one. The hall has windows, it accommodates book-shelves, a great fixed sofa, tables and chairs; and it forms an altogether agreeable sitting room from which by two steps we mount to a second smaller sitting room, a kind of recess with a stand and a chair and a picture which receives sufficient daylight, and from which you go up to the first landing of the stair, upon which again is a fixed seat and into which opens a window in the rear wall. There cannot be a pleasanter form of division than this.

Again in Fig 13 there is a hall with its heavy oak table and its book-shelves; there are the steps which take you up to a dining room with a recessed window, and by another entrance you reach the foot of the main stair, which in this picture is only just indicated.

So, in Fig. 15, this is the hall in which we are standing—there can be no mistake about that. The hat-rack is there and the door which is evidently the door from out-of-doors; but that part of the room contains the stair, and it is separated from the division in which we find ourselves by a parapet high enough to be called a screen. That is to say, the staircase is masked first by this low screen, secondly by the two square posts which carry the top girder, and thirdly by its position far in the rear of the room, allowing of its most complete concealment by a curtain or by high vases if they are desirable—a negligible quantity, in fact, until you need to ascend to an upper story. In this way the hall where we sit is in reality a sitting room differing from others by the fact that it has no solid partition between it and the entrance hall.

Fig. 16 shows on a larger scale an arrangement compatible with a very costly house. It is spacious and it is also rich with details of great elaboration. The chimney-piece is richly made up of marble, plain below and carved above with escutcheons of arms and with elaborate bronze fire-dogs. The fixed seat in the corner has a deeply carved arm. Similar and even richer carving adorns the stair in connection with its hand-rail and parapet; the ceiling is studded with electric bulbs in the panels, the whole composition is that befitting a mansion of much dignity.

If, now, we consider the stairs themselves, with the hall as being primarily the place for the stairs only—that is to say the staircase—Fig 17 shows one such staircase-hall leading directly into the library, but in itself allowing of access to the stair and nothing else except a door in the wainscoting.

Fig. 14 gives a similar arrangement in a strictly Old Colonial fashion with verdures for the wall hangings, a high and deep Em-

FIG. 14. HALL IN THE HOUSE OF JOHN NEWELL.
Cleveland, Ohio. Meade & Garfield, Architects.



FIG. 15.—HALL IN THE HOUSE OF A. F. OSBORN.
Cleveland, Ohio. Meade & Garfield, Architects.



FIG. 16.—HALL IN THE HOUSE OF F. W. WOOLWORTH. Chas. P. H. Gilbert, Architect. New York City.

FIG. 17.—HALL IN THE HOUSE OF H. S. PICKANDS.
Euclid, Ohio. Meade & Garfield, Architects.



FIG. 18.—HALL IN THE HOUSE OF JOHN B. DRAKE.
Chicago, Ill. Howard Shaw, Architect.



FIGS. 19-20.—HALL IN THE HOUSE OF DR. MARTIN.

Buffalo, Ill. Geo. Cary, Architect.

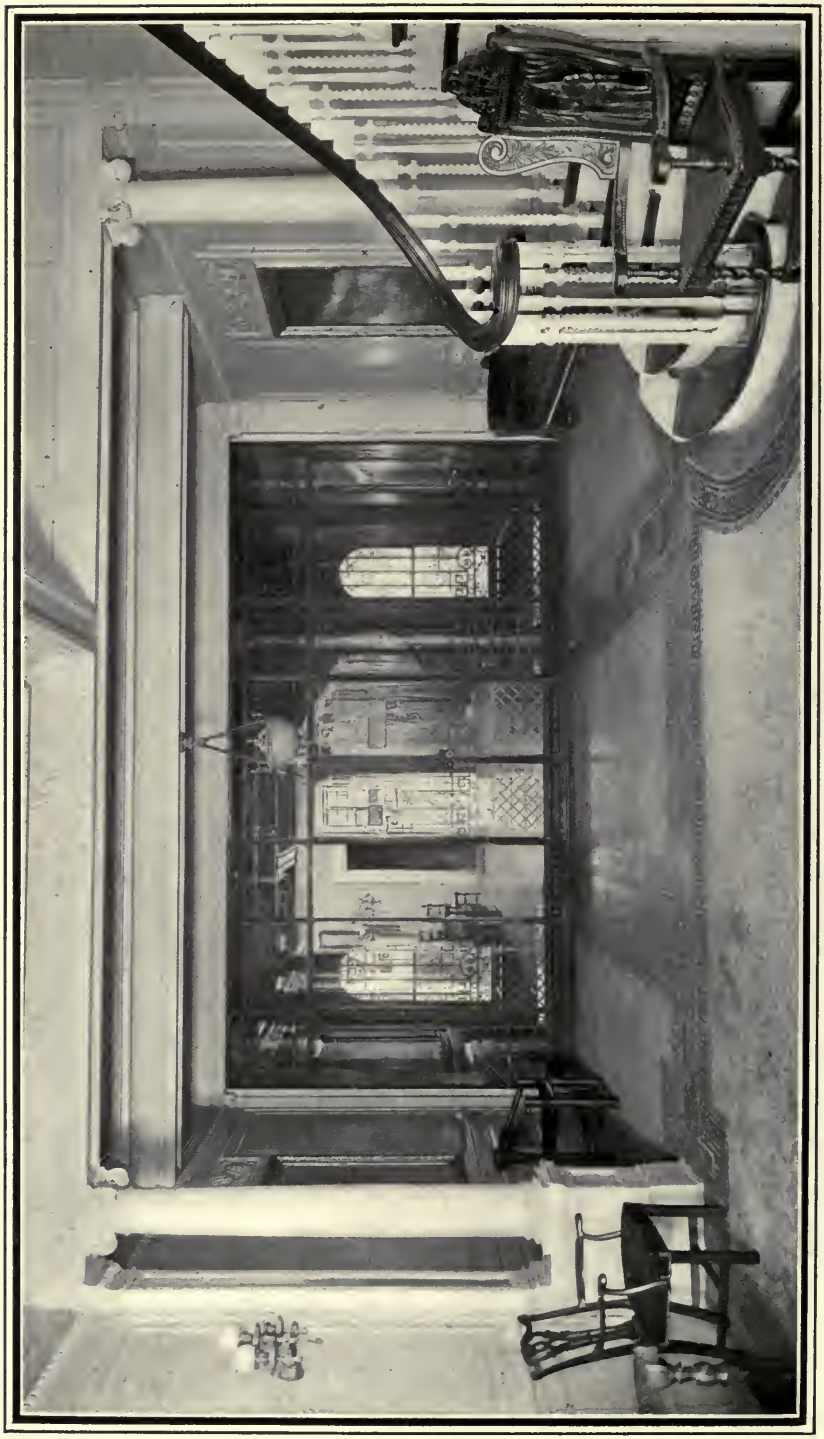


FIG. 21.—HALL IN THE RESIDENCE OF CLARENCE. W. BOWEN. Heins & La Farge, Architects.

5 East 63d Street, New York City.



FIG. 22.—HALL IN THE RESIDENCE OF CLARENCE W. BOWEN.
5 East 63d Street, New York City. Heins & La Farge, Architects.

FIG. 23.—HALL OF THE WARD HOUSE.

Evanston, Ill. Geo. T. Harvey, Architect.



FIG. 24.—HALL OF THE HOUSE OF FRANK HIBBARD.

Lake Forrest, Ill. Geo. T. Harvey, Architect.

pire sofa with a mirror hanging above it whose frame with the hooks smacks of the same early epoch, and the stair itself with its long and wide landing is an excellent piece of the stair building of a hundred years ago. Still more plainly is this antique art maintained in the halls shown in the two Figures 19 and 20. In this instance there is carried out in the best manner that picturesque and most interesting scheme, in which the newel of the stair is formed by a spiral turn of the hand-rail supported by a multiplicity of little balusters exactly like those of the ramp of the stair above. This is, indeed, a most fascinating piece of the kind.

Fig. 21 seems to be a modern composition in the same spirit, and it must be owned that the soffit of the stair in its upper part beyond the square "quarter pace" is more strictly true to precedent than in cases where a continuous sheathing replaces the moulded underside of each step. Another view of the same staircase is given in Fig. 22, where it is seen that a very broad and imposing set of glazed doors leads from the outer vestibule to the stair-foot.

The people of a hundred years ago, in the great wooden houses of Beaufort and along the James River and more rarely in the North, used to affect the double stairway, that with a central stair leading to the "half pace" and two stairs leading from that platform to the landing above. A good instance of that is given in Fig. 23.

Figs. 18 and 25 give, in a pleasant way, memoranda of the simpler and smaller staircases of our forefathers, showing those arrangements by which the stair was partly sheltered from drafts and the persons ascending and descending were partly sheltered from observation. These are always dangerous to the designer, because the raking lines of the stair are always difficult to manage and produce ungainly spaces, shapes and combinations. The best are the simplest and one likes Fig. 25 for its close building-in; hiding from the spectator all the sloping hand-rails, wainscots, base-boards and the like. Indeed, the more a stair can be built in between walls generally the better thing it is. This, however, is not a commonly accepted system, and Fig. 26 is an instance of a stair which was evidently an object of pride to its designer and to its owner. Certainly the artist deserves great credit who can come out of so difficult a task with a result so satisfactory. A little crowded, a little bending toward a rapid descent when you least expect it, this is still a noble stairway and the accessibility of the upper flight which is yet altogether separated from the main stair is extremely well managed.

Figs. 27 and 28 give the details of an extremely magnificent house, one built on the lines of the Jacobean houses of Great Britain. In such a house as this there should be no elevators nor other



FIG. 25.—STAIRWAY IN THE HEALY HOUSE.

Chicago, Ill. Myron Hunt, Architect.

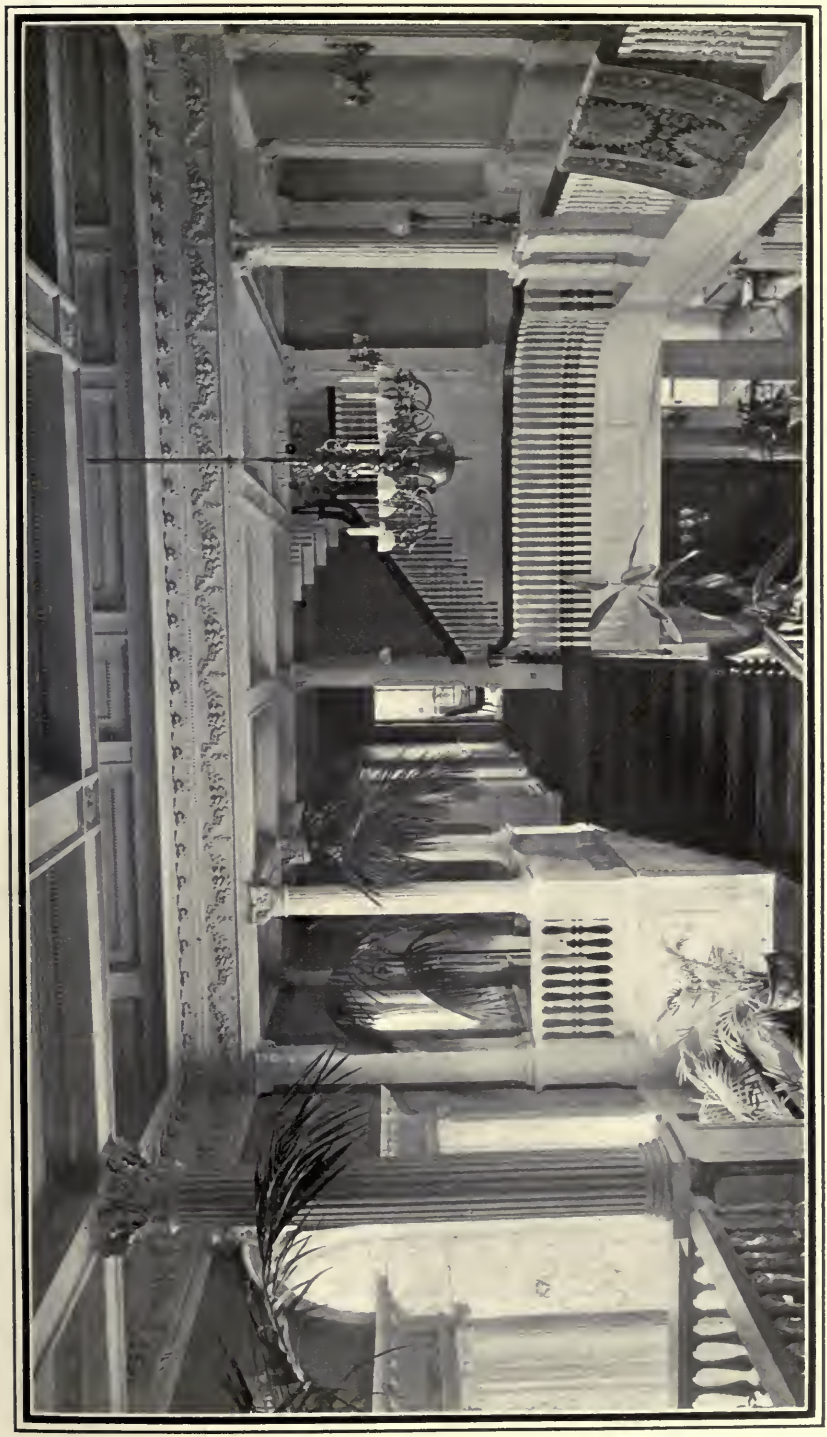


FIG. 26.—STAIRWAY IN THE HOUSE OF H. H. ROGERS, ESQ.

Fairhaven, Mass.



FIG. 27. THE HALL OF THE KIP HOUSE.
Orange, N. J. Henry Ives Cobb, Architect.



FIG. 28. THE HALL OF THE KIP HOUSE.
Orange, N. J. Henry Ives Cobb, Architect



FIG. 29.—STAIRWAY IN THE HOUSE OF CLARENCE MACKAY.
Roslyn, L. I. McKim, Mead & White, Architects.

modern conveniences except, perhaps, the electric light, which may be admitted to noble mansions in England, chiefly that it may the better illuminate the artistic treasures of the building itself and its contents. Thus the Oriental weapons above the doorway in Fig. 28 should have a special electric light whose beams may be thrown full upon them in order that the admiring visitor may see the details of those curious arms without asking that they be taken down for his examination.

Finally, Fig. 29 gives a stair of great splendor with parapets filled with Roman scroll-work carved in the solid wood pierced through and sculptured on either side. This is a stair which, for richness and brilliancy of effect, is worthy of Blicking or Hatfield.

There are some interesting bits of hall and passage which are not at all connected with the stair. Thus in Fig. 30 the landing at the head of the stairs has been partitioned off to form a lobby—more enclosed and less accessible than an open hall would be—to the bedroom beyond. Although one cannot welcome the imitation vaulting of the ceiling, this enclosed hall is yet a most attractive and generally simple composition. Fig. 24 shows how a large hall serves as outer sitting room, while a smaller inner room is three steps above it in front. The approach to the stair is seen in the passage at the right, but this is evidently a separate apartment and might even be considered a sitting room but that it is not fully partitioned off from the room on the higher level on the left.

Fig. 32 is a capital piece of hallway with doors leading in every direction and therefore hardly fit for much use as a sitting room except that two nooks are arranged with seats, one on either side of the chimney-piece.

Fig. 33 shows only one side of the hall which this represents and here are fixed seats in the recesses of the windows—one on either side of the fireplace, giving light though not much view.

Fig. 34 is not attractive from the number of levels seen in it. The large hall where we stand leads through a great opening to what seems a dining room on the left and it is not at all separated from the hall itself by door or curtain, and on the right we go up two steps and again three steps more to other parts of the house, these connecting in a way with the stair itself. This hall with its sofa, its cottage piano, its comfortable chairs and stands bearing lamps, is evidently a place of habitation, and the framed pictures on the walls show refined choice in works of art.

Fig. 36 is evidently immediately connected with the stair of Fig. 29. This is a larger and more stately hallway than any of the above, a very dignified composition showing how a room or corridor in the upper story is carried on the Ionic columns and square pillars, and how its bay window projects out over the great hall itself.

FIG. 30.—HALL IN THE HOUSE OF J. G. WORK.
Akron, Ohio. Howard Shaw, Architect.



FIG. 31.—LIVING ROOM IN THE HOUSE OF A. F. HOLDEN.
Cleveland, Ohio. Alfred Granger, Architect.



FIG. 32.—HALL IN THE SOUTHWORTH HOUSE.

Gilmanton, Ohio. Alfred Granger, Architect.

FIG. 33.—HALL IN THE HOUSE OF H. H. JOHNSTON.
Cleveland, Ohio. Milton Dyer, Architect.



FIG. 33A.—LIVING ROOM IN THE HOUSE OF COL. PERKINS.
Akron, Ohio. Meade & Garfield, Architects.

FIG. 34.—HALL IN THE HEALY HOUSE.

Chicago. Ill. Myron Hunt, Architect.



FIG. 35.—THE HEALY HOUSE.

Chicago, Ill. Myron Hunt, Architect.

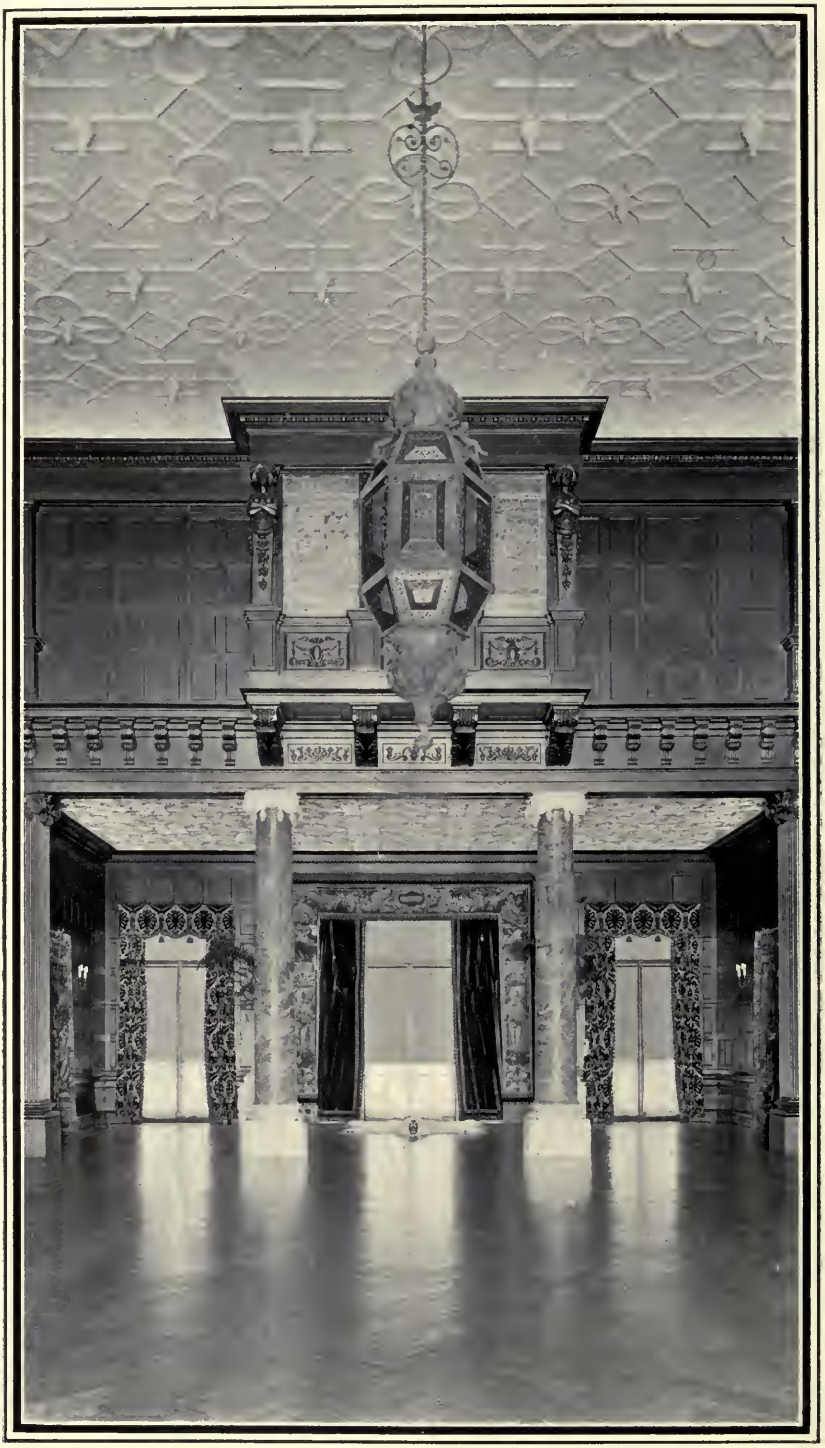


FIG. 36.—HALL IN THE HOUSE OF CLARENCE MACKAY.
Roslyn, L. I. McKim, Mead & White, Architects.

II.

The Living Room.

The size and arrangement of the living room will of course depend very largely on the foregoing considerations in the matters of the hall and stair:—indeed, these three features of the plan of a house of moderate cost are so mutually dependent, that either one can hardly be discussed without constant reference to the disposition of the others. Much of what has been said above on the subject of halls will, therefore, have more or less weight in deciding on the placing of the living-room.

When the site is spacious enough—as in the country—to allow of a certain amount of freedom in the orientation of the house and its parts, the first consideration will usually be given to exposure and outlook; and this will be of more especial importance in the placing of the principal rooms. Thus, in warm localities it is desirable that the living-room should face toward the prevailing summer winds; and, further, if the house is to be occupied throughout the year, that there should be some windows with a sunny exposure. So in the vicinity of New York, it is well to place the principal apartments along the southerly side of the house; and the offices and subordinate rooms to the north.

The question of the library is for our present purpose connected very closely with the living-room. What we are discussing is the dwelling in which the library and living room will very often be one and the same. Even in the case of the hard worker with pen or typewriter, the room where his books are kept is usually the sitting-room, he being free to reserve a workroom opening from it, of which he can shut the door and in which he can arrange his undisturbed thoughts and construct the lecture or the article which goes to make him the breadwinner. There is, however, another side to it, for in some houses the living-room is also the drawing-room. Many a family takes nearly this view of the situation—viz., that there must be a relatively large, airy and spacious room for the family sitting-room and for the more intimate guests, while a comparatively small reception room is used for the visitor who calls in the way of mere ceremony, or in the way of business, or on a single occasion without the immediate prospect of intimate acquaintance with the family. We shall see in our illustrations examples of both these schemes, but first let us consider those rooms which are living-rooms and nothing else.

Thus in Fig. 35 are the arrangements for comfort and convenience; the room on the right (raised by two steps) is evidently a plant room, a conservatory of that sort which accommodates itself



FIGS. 37-38.—LIVING ROOM IN THE HOUSE OF J. T. PIRIE, JR.
Evanston, Ill. Myron Hunt, Architect

well to the interior in which the family are to live; and this is not shut off by any door, the connection being by a wide opening, which makes of the conservatory a kind of bay window of unusual size and importance. Then in the room itself there is another bay window used as a recess for the fixed sofa, with the awkward but evidently inevitable device of a register for the heat and for the ventilation shown on its upright side. On either side of the simple brick chimney-piece,—an admirable fixture which one longs to see more often in these tranquil domestic interiors,—there is a window commanding a view of trees and open country, and of these windows one is short, with a sill raised very high to allow of book-shelves below it. The encroaching radiator is the only blot on this charming composition. If, as is most probable, the beams of the ceiling are really the working timbers merely boxed with boarding or finished off with moulding, we can leave this sitting room with the feeling that nothing more delightful is likely to come our way. Something of a similar character is to be found in Fig. 37, a room by the same architect in that Evanston which is overshadowed by the renown of its great neighbor, Chicago. Here the one-story house is so treated that the low walls of the sitting room are helped out by the slope of the roof; so that the room, not more than 7 feet in the eaves, rises to 11 feet or more in the middle. Commonly this arrangement has the unfortunate result that the daylight is not admitted from a sufficient height above the floor, but in this case the putting in of that capitally conceived dormer window seen on the right remedies the possible difficulty and gives us in part, at least, a sufficient lighting for whatever in the room may need to be seen by full daylight.

Again in Fig. 38 are seen the arrangements of the same room from another point of observation. This is a noble sitting-room indeed, with windows in three walls and a great brick chimney-piece. Other illustrations of the same house will be found in Figs. 12-13, and the architect, Mr. Myron Hunt, is to be congratulated on his success in designing this dwelling as well as that of Mr. Healy.

In Fig. 39 there is an interesting flavor of old tradition in the woodwork—in the wall covering above the chimney-piece and in the open timber roof with its framing around the chimney-piece calculated for the hearth of the story above. The window high in the wall and above the book-case with solid doors, is always an attractive feature, and here, too, lies the book of him who may sit in the arm-chair by the chimney-corner.

In Fig. 42 there is a serious study of heavy timber work of which one longs to know the whole reason and all the conditions. The massive sticks which are framed either side and above the

FIG. 39.—LIBRARY IN THE FORMER RESIDENCE OF JOHN G. MILBURN.
Buffalo, N. Y. Geo. Cary, Architect.



FIG. 40.—LIBRARY IN THE WILCOX HOUSE.
Buffalo, N. Y. Geo. Cary, Architect.

chimney-piece must carry more than merely the frame of the hearth above, and the adornment of the panels with a highly wrought painting and with relief of flower and fruit in carving or in stucco manifests still more the importance of this feature. The fireplace itself is faced around with a mosaic of tiles about two inches square; the fire-dogs are wrought into the semblance of colonettes of generally Corinthian designs, and in these ways an air of pretension is given to the room which, however, is perfectly maintained by the general worthiness of the details.

Fig. 44 carries farther than usual the arrangement of the windows flanking the chimney-piece—windows high in the wall, with book-cases below them and, in short, a familiar arrangement carried out to its logical extreme. There is no doubt about the advantage of the plan from the point of view of receiving daylight freely at the most agreeable side of the room. In the present instance there does not exist that other advantage, the looking out-of-doors as you sit by the fire, for (probably from different local causes) it has been thought best to fill these window-frames with decorative glass of a pretty design. It was a good thought to arrange these windows as casements with hinges by which they may swing freely into the room; but the little lamp which is set against one of them seems to argue that they are not swung open every day.

This matter of the sitting-room extends itself inevitably into the larger library. Such a room as that shown in Fig. 45 is the book-room of a family possessing several thousand presentable volumes, besides all the unbound and less attractive books which must accumulate in cupboards and closets. There is an admirable ceiling of plaster work in the Tudor design and in this case a paneling of woodwork reaches the ceiling with the Ionic order in modified form; and as is proper in such a case the entablature is reduced to a frieze and cornice, and the epistyle reduced to a mere moulding. There is an odd effect produced by the heavy carved stone bracket of the mantel-piece carrying a wooden superstructure, but this is mentioned as a singular feature to which attention should be given and as one requiring treatment of the objects to be placed upon the mantel-piece rather in the way of color harmony than otherwise. Thus if one were to choose the decorative pieces to be set at both ends of this broad shelf, one would choose something carved in stone or marble, or if a vase at each end, then a huge and heavy one, rather pale in color and ponderous in form.

But as to the real drawing-rooms, the rooms arranged *en suite*, we have them in Figs. 49 and 50. In one, the long room with its two chimney-pieces, is hung with tapestries with figure subjects on a very large scale, and furnished with sofas, chairs and *fauteuilles*

FIG. 41.—LIBRARY IN THE HOUSE OF HERMAN KELLY.
Cleveland, Ohio. Meade & Garfield, Architects.



FIG. 42.—LIBRARY IN THE HOUSE OF B. G. WORK.
Akron, Ohio. Meade & Garfield, Architects.

FIG. 43.—LIBRARY IN THE HOUSE OF H. S. PICKANDS.
Cleveland, Ohio. Meade & Garfield, Architect.



FIG. 44.—LIVING ROOM IN THE WARD HOUSE.
Evanston, Ill. Geo. T. Harvey, Architect.

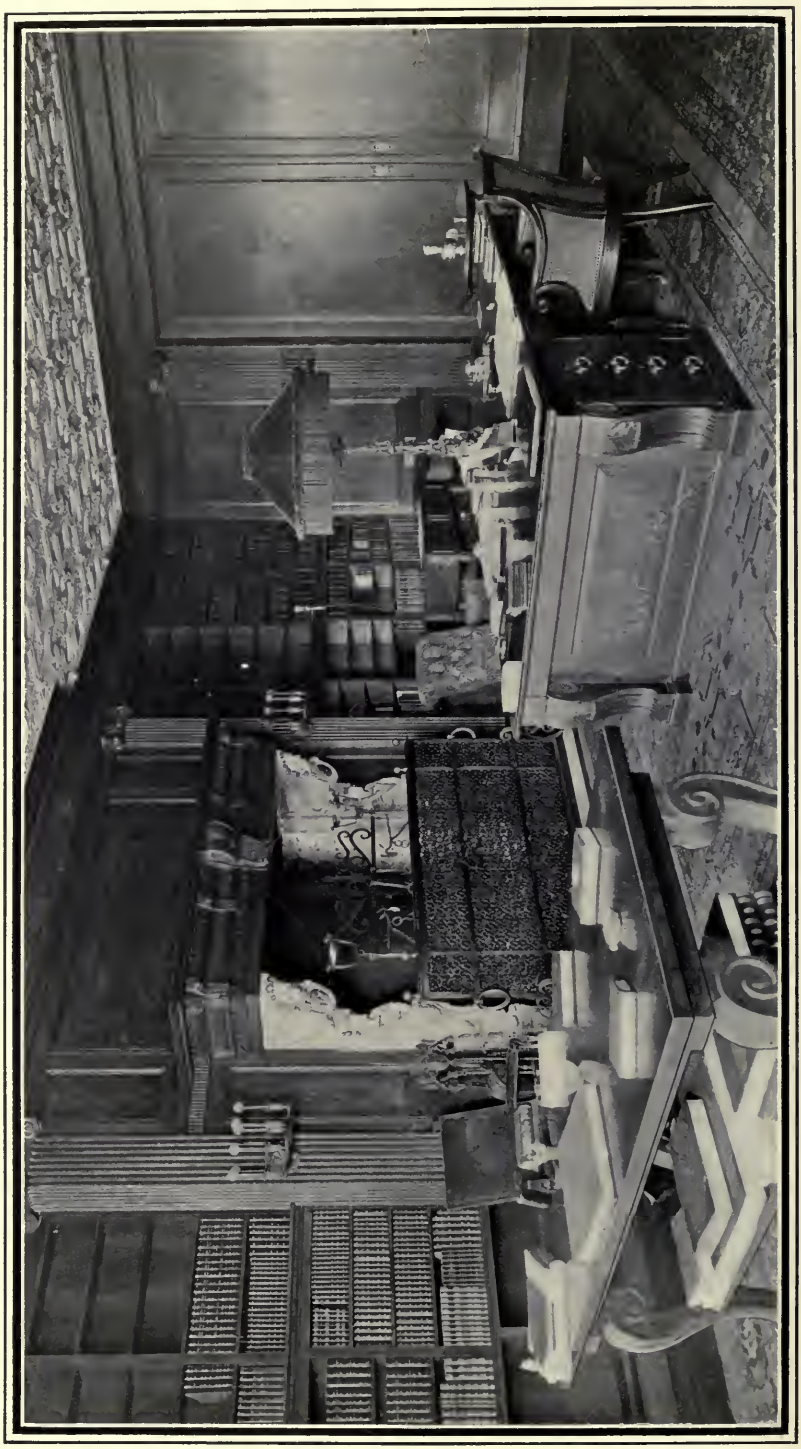


FIG. 45.—LIBRARY IN THE RESIDENCE OF THE LATE WILLIAM C WHITNEY.
Wheatleigh Hills, L. I. McKim, Mead & White, Architects.



FIG. 46. ROOM IN THE RESIDENCE OF THE LATE WILLIAM C. WHITNEY.

Wheatleigh Hills, L. I. McKim, Mead & White, Architects.

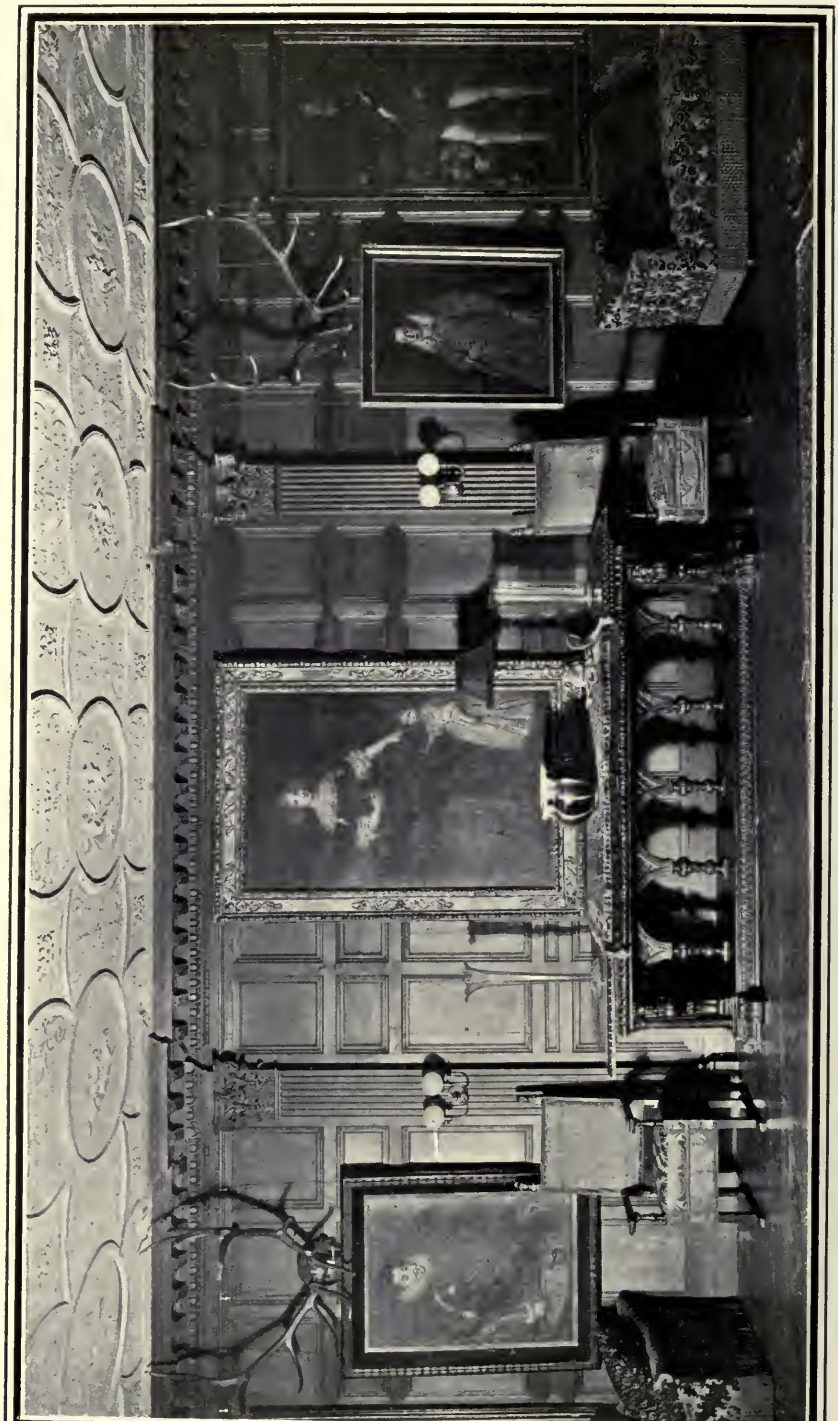


FIG. 47.—ROOM IN THE RESIDENCE OF THE LATE WILLIAM C. WHITNEY.
Wheatleigh Hills, L. I. McKim, Mead & White, Architects



FIG. 48.—ROOM IN THE RESIDENCE OF THE LATE WILLIAM C. WHITNEY.

Wheatleigh Hills, L. I. McKim, Mead & White, Architects.

FIG. 49.—GRAND SALON IN THE HOUSE OF GEN. DRAPER.
Washington, D. C.



FIG. 50.—DRAWING-ROOM IN THE RESIDENCE OF M. DE MARGERIE.
Washington, D. C.



FIGS. 51-52.—DRAWING-ROOM IN THE RESIDENCE OF GEN. DRAPER. Washington, D. C.

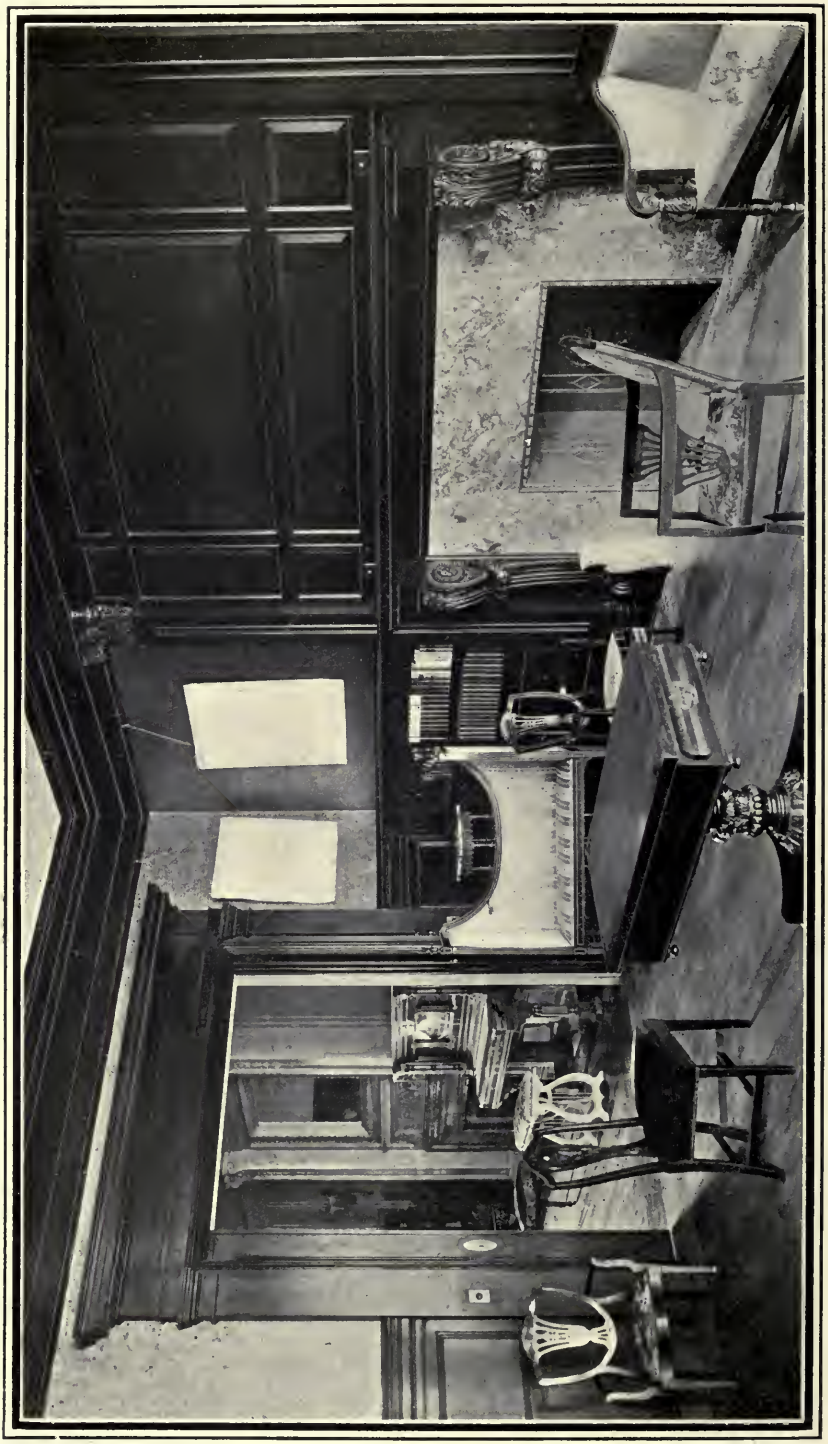


FIG. 53.—DRAWING-ROOM IN THE RESIDENCE OF CLARENCE W. BOWEN.
Heins & La Farge, Architects.
5 East 63d Street, New York City.



FIG. 54.—LIBRARY IN THE RESIDENCE OF CLARENCE W. BOWEN.

5 East 63d Street, New York City. Heins & La Farge, Architects.

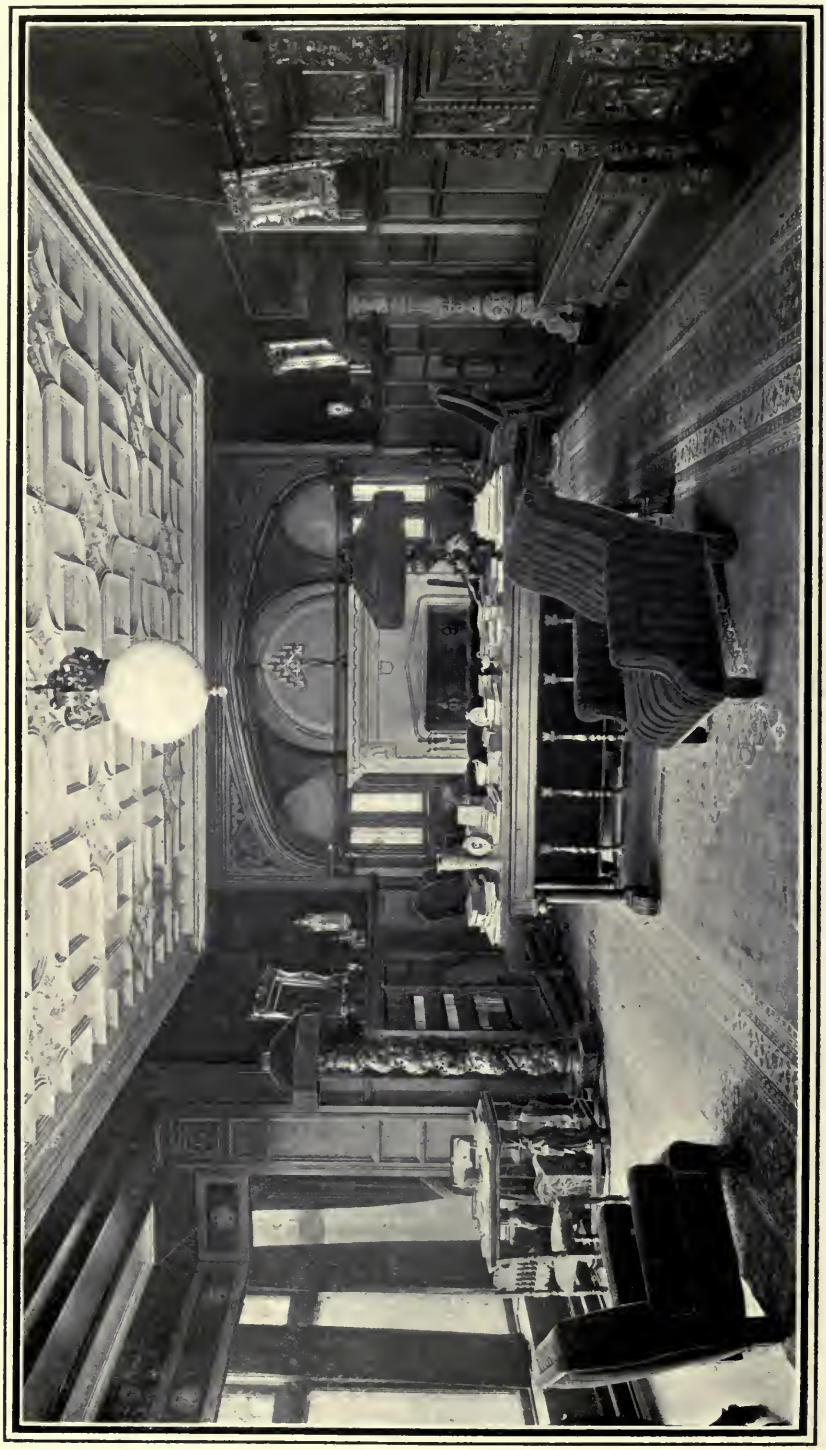


FIG. 55.—LIBRARY IN THE KIP HOUSE. Henry Ives Cobb, Architect.

Orange, N. J.

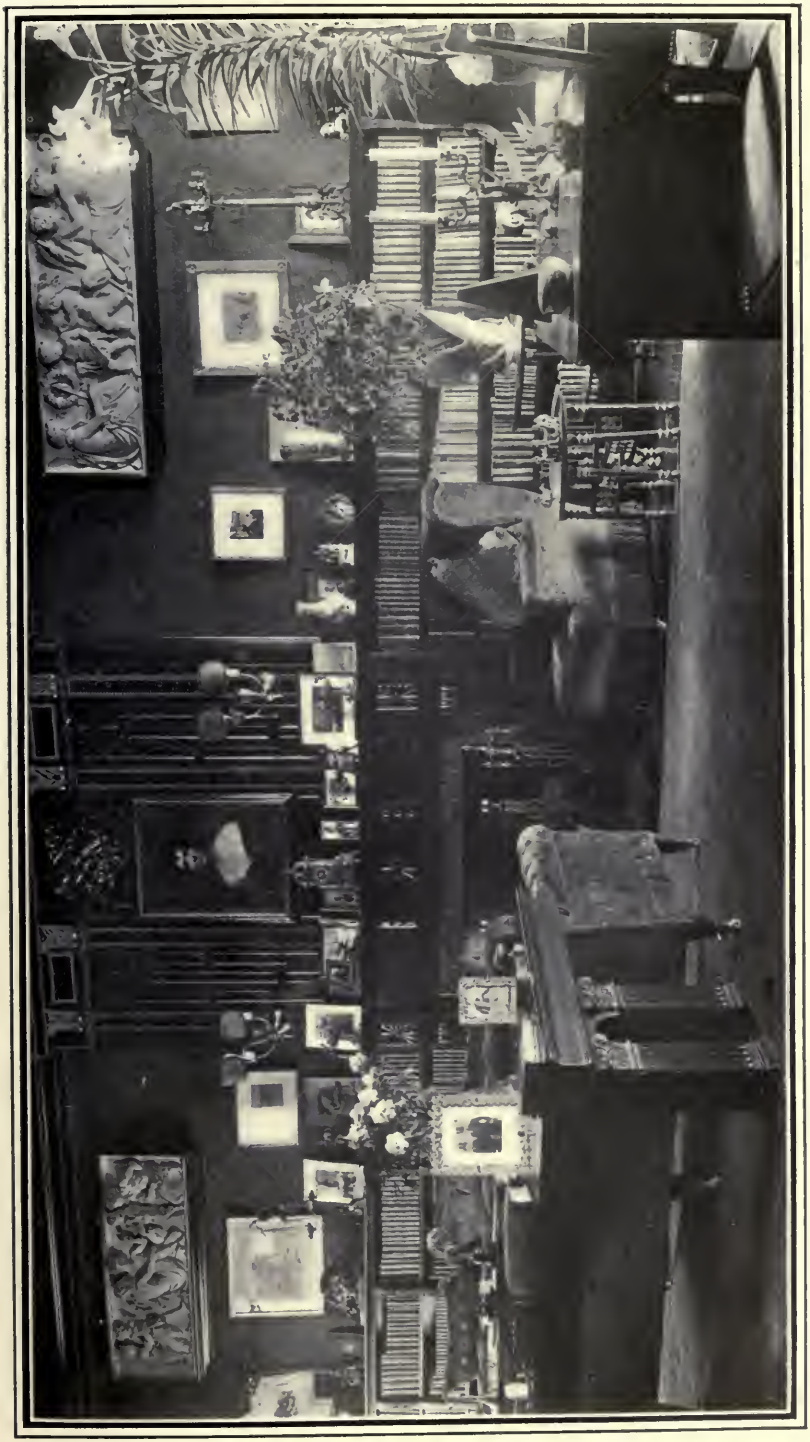


FIG. 56.—LIVING ROOM IN THE RESIDENCE OF REGINALD DE KOVEN.

Washington, D. C.



FIGS. 57-58.--DRAWING-ROOM AND DEN OF WOOLWORTH HOUSE.
New York City. C. P. H. Gilbert, Architect.

FIG. 59.—LIVING ROOM IN THE RESIDENCE OF MRS. BUSH.
Buffalo, N. Y. Geo. Cary, Architect.



FIG. 60.—LIVING ROOM IN THE RESIDENCE OF DEXTER P. RUMSEY.
Buffalo, N. Y. Geo. Cary, Architect.



FIG. 61.—SITTING ROOM IN THE HOUSE OF CLARENCE MACKAY. Roslyn, L. I. McKim, Mead & White, Architects.

of a style between Louis XIV. and Louis XV. covered with something that looks like Beauvais tapestry. There are very rich tables in the room, the farther one in the middle looking as if it were adorned with gilded bronze of the best epoch of Louis Quinze, while the nearer table seems to be inlaid with blocks of porcelain or possibly of Wedgewood ware. Fig. 50 shows a series of rooms, and in view of the charming display of flowering plants which almost fills them one wishes for a simpler background. But this is indeed hypercritical—or rather it applies only to the picture—indeed the photograph may be trusted to exaggerate the marking of the pattern, and that which is dull red or yellowish brown on ivory white will come out in a violent contrast in the photographic plate. It is true that the half-tone process reduces this extreme of contrast again.

Figs. 51 and 52 are views in a large ballroom: this cannot be considered a sitting room in the ordinary sense, and yet in summer how delightful is a room to inhabit which is indeed of that extraordinary size! There is no place quite so cool as a very big room with a moderate current of air entering at the windows and doors. Such a current of air ceases to be a draft—it does not worry you with fears of to-morrow, it allows the whole room to remain sweet and pure with a steady temperature. Give us for our summer evenings a room not smaller than 40 by 70 feet.

III.

The Dining-Room.

The considerations of exposure and outlook, discussed above in connection with the Living-Room, apply also to the Dining-Room. Here, however, the question of outlook is not of equal importance because the dining room will not be used, habitually, for other purposes than the serving of meals. When it is to be so used—when the dining-room is also the family sitting-room—the condition of the two classes of apartment have to be considered simultaneously; and the case becomes too complex to be provided for except in connection with the immediate site and the house-plan.

As for the internal arrangement of the dining room in its more usual capacity, this is governed mainly by the form and disposition of the table—especially of the dinner-table, which may sometimes differ in size and arrangement from that used at other meals. If an extension table is to be used, the shape of the room will tend to be relatively long and narrow, especially if it is to accommodate a large party at certain times. Thus a table for twelve persons needs to be 11 or 12 feet long, and in recent times not less than 4 feet wide. This will require a floor space not less than 12 feet wide for

convenient service, and about 20 feet in length in the clear between the opposite walls, so that if the chimney-breast is at one of the narrow ends of the room this measurement of 20 feet must be taken between the face of the chimney-piece or of the mantel-piece and of the opposite wall. Again if the sideboard is to be put in at the end opposite the fireplace this also must be considered; for a space of at least 19 feet is really needed for the proper service of the table when extended to a length of 12 feet. As for the width of the room, with a 4-foot table, 11 feet in the clear between the walls, between fireplace and sideboard, between sideboard and service table, between any and all permanent obstacles must be maintained. This, of course, is an awkward shape for the room and accordingly it is usual to give to the dining room greater breadth than seems essential and then to occupy this greater breadth with (as above suggested) the mantel-piece and the sideboard, or the service table, or both; in other words, the room within the walls may be 19 feet by 14, a tolerable proportion; and all the large obstacles, more than once named above, may be put on the long sides. It is here, of course, that the book-cases and the like will be set in rooms which have the double purpose of sitting room and eating room.

The disposition of windows for the proper lighting of this oblong dining room is perhaps more difficult than in the case of any other apartment of the average house—the desirability of so arranging the windows that persons sitting at table shall not have their backs turned directly to the light, and of lighting the table equally throughout—these considerations often bring about a problem difficult to solve with entire satisfaction. If conditions permit of placing the room so that there may be a skylight or a lantern-light over the table, or across one end of the ceiling—as in the case of a bay—very effective interior may be had, and with but few openings in the sidewalls. Ordinarily, however, this feature of the plan will be found impracticable for houses of moderate cost, and daylight must, therefore, be obtained from the sidewalls only. Then, obviously, windows in one of the longer sides of the room will afford the most perfectly distributed light, and these windows should preferably be high in the wall—carried close up to the ceiling, as, for instance, to a line 12 inches below it, and with high sills; the purpose being to throw the light downward rather than horizontally—over the heads and shoulders of the diners rather than directly on their backs. A very good plan has been made, in which the dining room, of only moderate height, was unusually well lighted from two adjoining sides; the windows in each wall being close to the corners. This resulted in cross lights passing diagonally over the table from the ends, and the central position of each wall was available



FIG. 62.—DINING ROOM IN THE RESIDENCE OF CLARENCE W. BOWEN.

5 East 63d Street, New York City. Heins & La Farge, Architects.

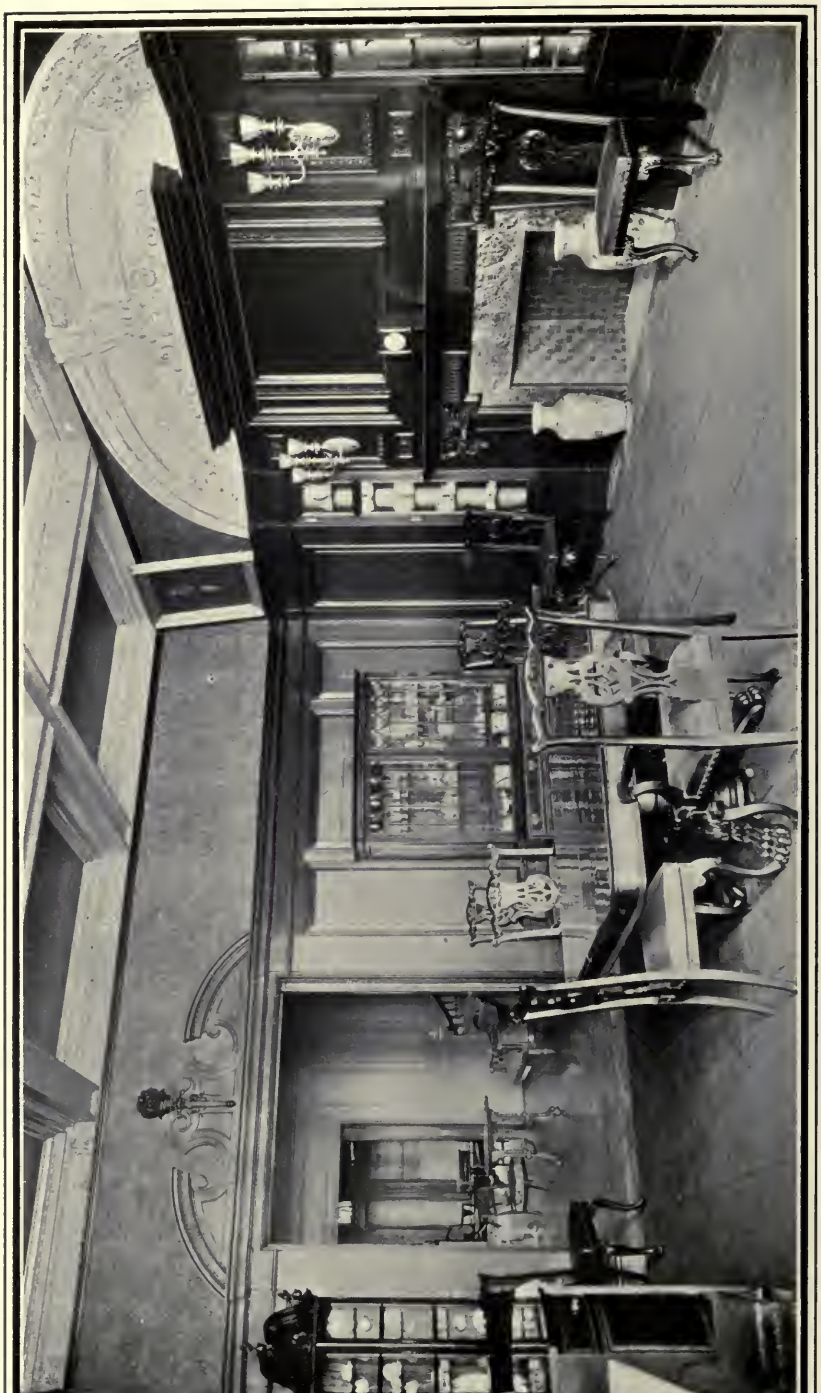


FIG. 63.—DINING ROOM IN THE RESIDENCE OF CLARENCE W. BOWEN.
Heins & La Farge, Architects.
5 East 63d Street, New York City.



FIG. 64.—DINING ROOM IN THE RESIDENCE OF CLARENCE W. BOWEN.

5 East 63d Street, New York City. Heins & La Farge, Architects.

FIG. 65.—DINING ROOM IN THE RESIDENCE OF B. G. WORK.
Akron, Ohio. Howard Shaw, Architect.



FIG. 66.—DINING ROOM IN THE RESIDENCE OF W. D. SCHULTZ.
Zanesville, Ohio. Alfred Granger, Architect.

FIG. 67.—DINING ROOM IN THE HOUSE OF A. F. HOLDEN.
Cleveland, Ohio. Alfred Granger, Architect.



FIG. 68.—DINING ROOM IN THE HOUSE OF JOHN B. DRAKE
Chicago, Ill. Howard Shaw, Architect.

FIG. 69.—DINING ROOM OF THE WILCOX HOUSE.
Buffalo. N. Y. Geo. Cary, Architect.



FIG. 70. DINING ROOM IN THE HOUSE OF MRS. MAVIS.
Buffalo, N. Y. Geo. Cary, Architect.

for furniture. An equally good, and more artistically effective, design will result by lighting a long room from the two opposite ends; but the necessary condition—two opposite outer walls—will not often be obtained.

The foregoing considerations, based on the requirements of a long table and a corresponding long room, will be found much modified in the case of the much broader table, in fashion about 1875 to 1890 and of the round dining table, the use of which appears to be increasing in popularity, and which demands less floor space for convenient service than a long table of equal seating capacity. Thus a round table five feet in diameter—or thereabouts—will accommodate a party of eight with comfort, while a diameter of some six feet will allow of ten or more seats. Hence a floor space of 15 feet across will be ample provision for the table of an average household, making allowance for other dining room furniture outside of this space. Such a table, then, can be placed at one end of the room, 15 feet wide, and could be well lighted from that end wall, even with only one or two windows; and the entire room need not be more than, perhaps, 15 by 18 feet. If that end of the room can be treated as a bay, projecting considerably beyond the façade, it may be made a most attractive feature in the design of a dining room. For instance, let such a bay have the form of a semi-circle or semi-polygon, with the table at its centre—windows can then be provided all along the perimeter of the bay, leaving the wall spaces of the inner portion of the room for placing other furniture. This is an especially pleasant feature in a summer home, for nearly the entire extent of the outer wall can be made to open, so that the bay becomes almost the equivalent of a verandah.

It will be readily understood that the conditions of the room are nearly the same in the case of the square and of the round table. The point is, in either case, that the dining room does not tend to be long and narrow relatively as in the days of tables intended to be adjusted in length to the requirements of a large party. The table of recent years, with its square or round or—less frequently—polygonal top, is not an extension table at all, but is fitted to receive tops of different sizes; exactly as in a restaurant a number of circular table-tops are kept in stock, and according to the size of the dinner party the largest (accommodating twenty persons perhaps) will be put in place—or a smaller one accommodating fourteen, twelve or ten. Thus in Fig. 63 the room, being nearly square in plan, is so large relatively to the ordinary size of the dining-table that it would accommodate a round-top or square-top table large enough for sixteen guests, and this without causing a derangement of the furniture in the room. Figs. 62 and 64 illustrate the same large dining room.

Fig. 66 shows a room in Zanesville, Ohio, which is frankly designed in a modification of the Georgian (Old Colonial) style, and is a really excellent composition. The decoration includes the very obvious protection for the walls—the dado which in this case is carried up to a height of about seven feet and corresponds in height to the mantel-piece. The shelf of the mantel is carried around the room, though elsewhere it is narrower than over the fireplace; and this shelf, wide or narrow, affords the best possible place for exhibiting those bowls, platters, tea-pots, covered dishes and the like, which are among the treasures of the true lover of "old china." Such a collector puts his stately vases into his drawing room and library; but the majority of the collector's pieces are not stately vases; and, in a way not perfectly explicable, the dining room seems to be the more congenial home for the covered sugar-pots, the small tureens, and the huge Persian and Chinese bowls which, under the general name of "punch bowl," though now not used for punch, adorn the rooms of the happy few.

Fig. 67 shows another Old Colonial dining-room in which the paneling goes almost to the ceiling, leaving only a very narrow strip of flat wall between the surbase of the woodwork and the plastered "cornice" above. It is not, perhaps, the most happy disposition; but the very strong and spirited plaster-work of the ceiling in a modified Jacobean style seemed to call for the sheathing of the wall with woodwork, and this was perhaps the most convenient plan. It has the additional advantage of giving to the ceiling the full size of the room between the walls; for if the paneling had been carried up to the flat surface of the ceiling, the room would have looked smaller, inevitably.

Fig. 69 is a dining room of the neo-classic style, very much such a room as was devised for the wealthy citizens of 1825 and the years following. To our modern tastes the parts of the fully developed entablature and the columns of the composite order are brought so near to us, on the walls of the room, that they are severally a little aggressive. This, however, seems hypercriticism in view of the fact that the traditions of our most elegant American life of the time when men now old were born, all combined to make this seem the architecture of the Fathers.

Fig. 71 has a simple dado and very simple woodwork of the character of our good village houses of the very beginning of the nineteenth century. Fig. 76 has the dado reduced to about the usual height of the chair-rail—that is to say, the wall is covered with woodwork to a height of about 2 feet 10 from the floor and from this, as from an architectural basement, rise the pilasters which adorn the corners of the projecting chimney-piece and of the recess opposite to it.



Washington, D. C. FIG. 71.—DINING ROOM IN THE HOUSE OF REGINALD DE KOVEN.

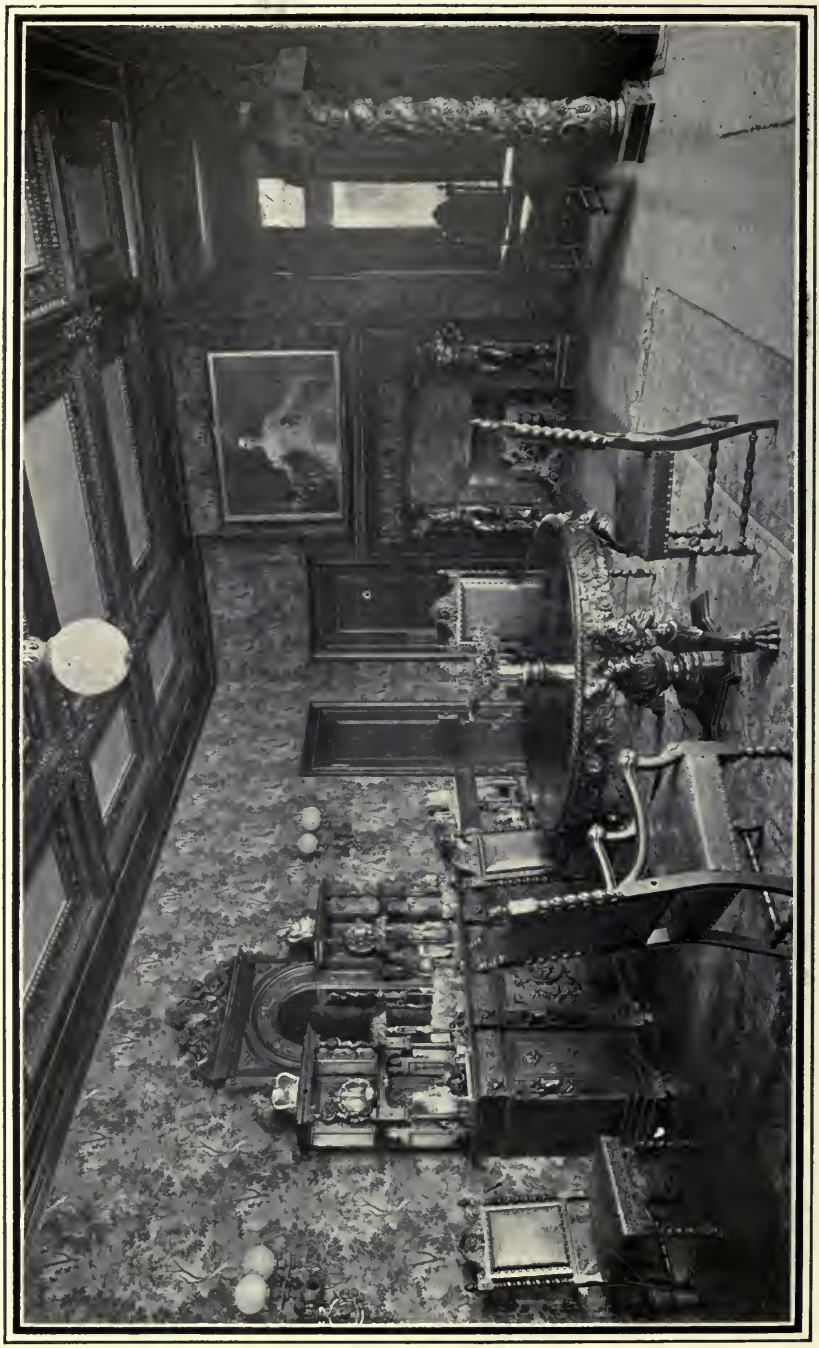


FIG. 72.—DINING ROOM IN THE KIP HOUSE. Henry Ives Cobb, Architect.

Orange, N. J.



FIG. 73.—DINING ROOM IN THE HOUSE OF M. DE MARGERIE.

Washington, D. C.

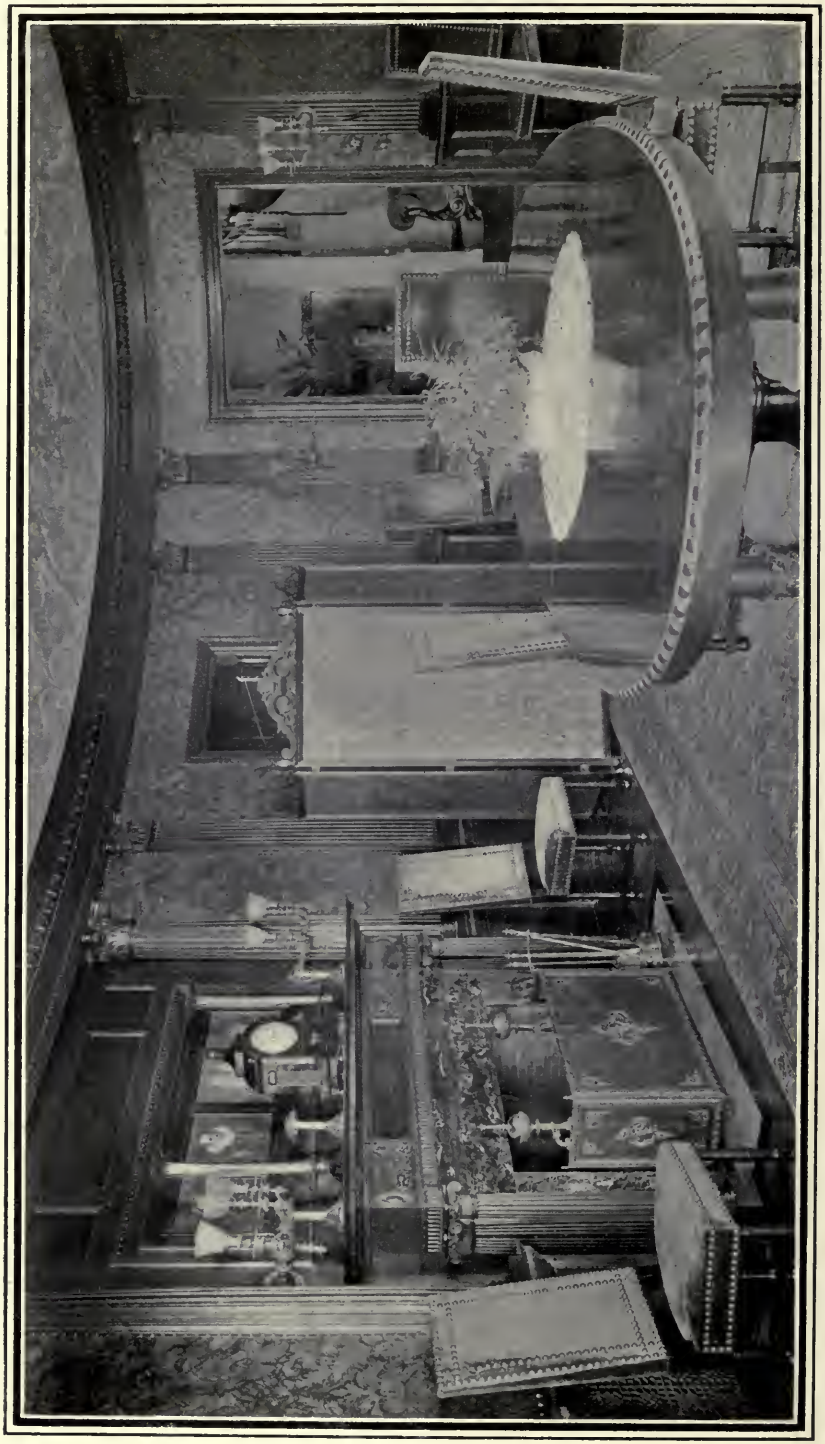


FIG. 74.—DINING ROOM IN THE HOUSE OF H. H. ROGERS.

Fairhaven, Mass.

FIG. 75.—DINING ROOM IN THE HOUSE OF JAS. VILES.

Lake Forest, Ill. Frost & Granger, Architects.



FIG. 76.—DINING ROOM IN THE HOUSE OF COLEMAN HASKELL.

Cleveland, Ohio. Meade & Garfield, Architects.

FIG. 77.—DINING ROOM IN THE HOUSE OF J. T. PIRIE, JR.
Evanston, Ill. Myron Hunt, Architect.

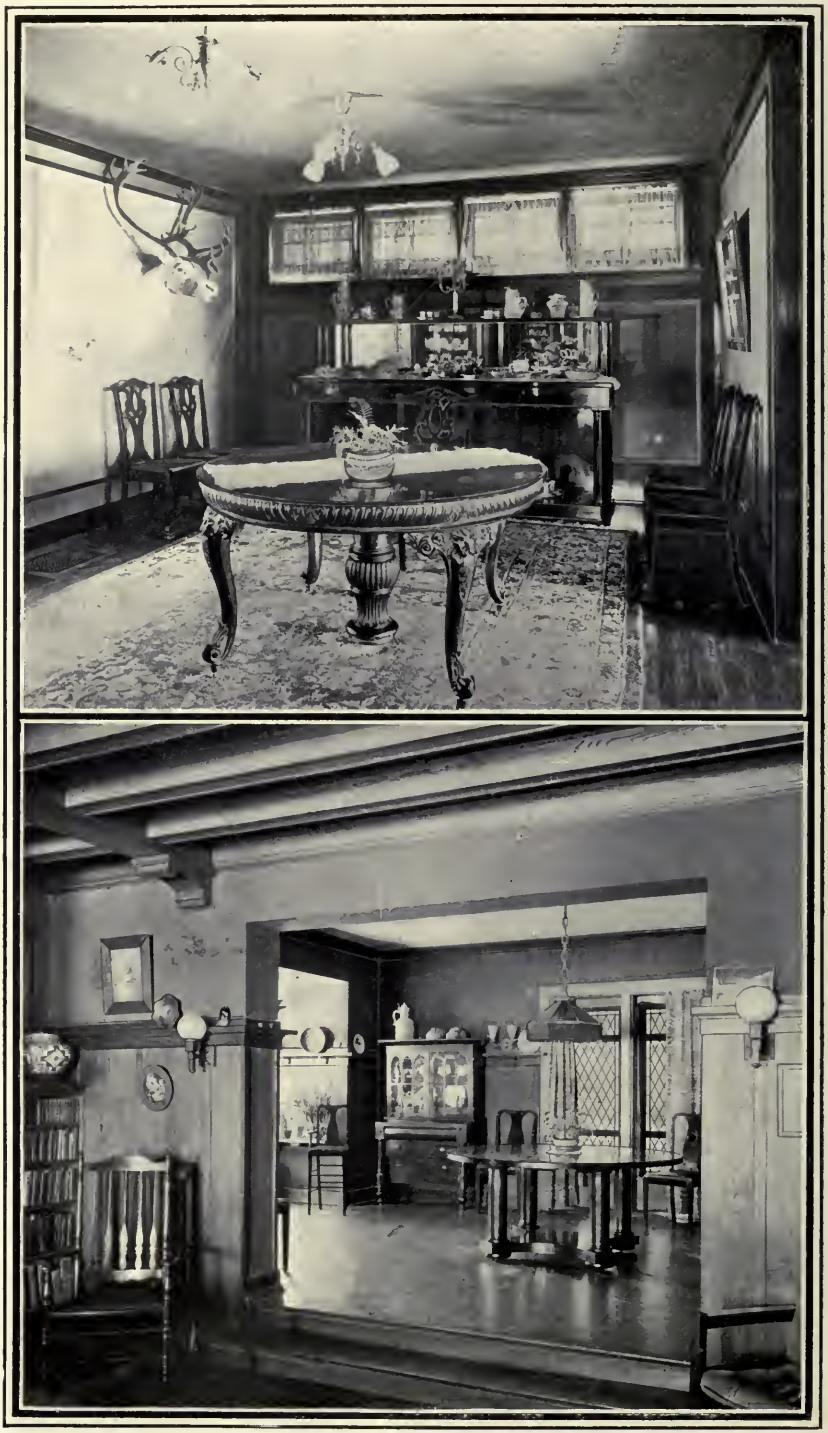


FIG. 78—DINING ROOM IN THE HEALY HOUSE
Chicago, Ill. Myron Hunt, Architect.

FIG. 79.—DINING ROOM OF WARD HOUSE.

Evanston, Ill. Geo. T. Harvey, Architect.



FIG. 80.—DINING ROOM IN REES HOUSE.

Cleveland, Ohio. Meade & Garfield, Architects.

FIG. 81.—DINING ROOM IN THE HOUSE OF H. S. PICKANDS.
Cleveland, Ohio. Meade & Garfield, Architects.



FIG. 82.—DINING ROOM IN THE HOUSE OF JOHN NEWELL.
Cleveland, Ohio. Meade & Garfield, Architects.

FIG. 83.—DINING ROOM IN THE HOUSE OF COL. PERKINS.
Cleveland, Ohio. Meade & Garfield, Architects.





FIG. 84.—BREAKFAST ROOM IN THE HOUSE OF H. H. JOHNSTON.
Cleveland, Ohio. Milton Dyer, Architect.

Fig 70 again is a room of old-time appearance, with a decoration on the end wall behind the service table which any lover of New England traditions might envy.

Fig. 78 is a most attractive room fitted up in the true taste of one who loves the tranquil village life of a century ago. It is in this way that the dining room and sitting room of a prosperous villager of 1800 and the years following were really furnished and adorned; and the architects who are the most constantly occupied with the dwelling houses of the children of those prosperous villagers—the men who build in the towns around Boston and along the north shore—those architects tell us that the old traditions remain, and that the family who will spend several thousands of dollars for a painting will not expend money for the adornment of the interior—for the carving of the mantel-piece, for the inlaying of the columns —in short, they say that it is a Puritan tradition to spend nothing on your house, whereas the Puritan tradition has nothing to say about the separate and portable work of art. Another such room is Fig. 75, and in this the furniture as well as the permanent fittings are of the true old style of a century since.

In Fig. 68 it is the furniture rather than the fitting up of the room which is of the antique taste, although in saying this there must be exception made for the not perfectly explained figure of great interest, the chain which supports either end of the mantel-shelf. Is that a tradition? The writer confesses to a delighted surprise at seeing it, and to a desire to know more about its origin.

Other illustrations in this article show rooms with the now fashionable square table, rooms with elaborately carved table and chairs, rooms with a fireplace of unusual character—like that one with the really interesting metal hood and huge fire-dogs—and rooms interesting for their snug compactness. It is an attractive display, a real picture-gallery of pleasant domestic interiors.

IV.

The Bedroom.

The French lady has always made her bedroom serve the purpose of a sitting room. The French bedroom, at least in the cities, is on the floor with the *salon*, the dining room, the library, and must inevitably form *suite* with them. The French bedroom, being a part of the series or groups of rooms on one floor which are run together in a dwelling, has the same height of ceiling and somewhat the same liberal decoration as the more public rooms of the *appartement*. Indeed, in a reception or entertainment of any size the bedroom has to be thrown into the other rooms for a more or less free use by the guests and their

FIG. 85.—BEDROOM IN THE HOUSE OF J. T. PIRIE, JR.
Evanston, Ill. Myron Hunt, Architect.



FIG. 86.—BEDROOM IN THE HOUSE OF JOHN B. DRAKE.
Chicago, Ill. Howard Shaw, Architect.

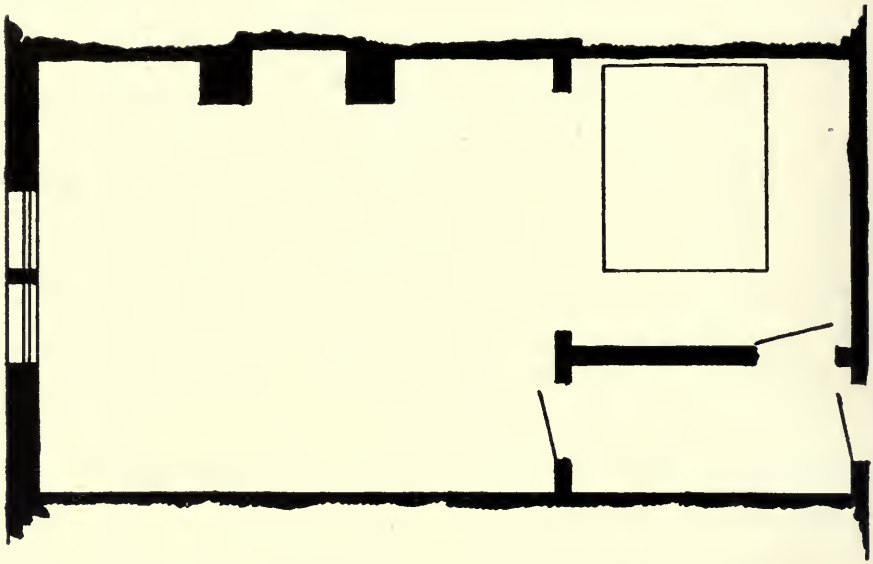


FIG. 87.—DISPOSITION OF TYPICAL FRENCH BEDROOM AND BOUDOIR.

hosts. This however, is done—this freedom of access is made possible, this employment of the room as one of a handsome series of rooms becomes natural—because of the disposition of the bed itself in an alcove which can be quite perfectly screened. Fig. 87 shows this disposition as it has been for many years. The large bedstead nearly fills the space of the alcove, which is in fact a small room with two openings in its walls; the one a wide doorway —for such indeed it is though not closed by doors—treated as part of the ordinance of the larger room without; the other a quite narrow doorway, with a hinged door hung upon one of its jambs and intended merely for the use of the care-taker who "makes the bed." The alcove may be a little larger and have a *ruelle* between the bed and the wall, wide enough for a piece of furniture, and often in old times accommodating a chair or even a *fauteuil* in which a visitor might sit. It was the place where, one after another, the guests to whom the lady would do special honor were received at the time of morning visits, the lady having first submitted to the process of the toilet, at least to the extent of having her hair most elaborately dressed.

This arrangement of the alcove has never obtained in the United States, the Americans having followed English rather than French precedent in the matter. But another tendency is at work which is curiously leading nearly in the same direction as the universal recognition of the alcove, and that is the banishment—not of the bed, but of the toilet apparatus generally, into a separate room well shut off from the bedroom proper. If we put bath and basin and all the

"water-works" together into a large and sufficiently lighted dressing-room, then indeed the bedroom, having nothing to suggest special privacy except the bed itself, may become a sitting room available as a *boudoir* of very large establishments. And, by the way, has not the *boudoir* gone out? It does seem to the writer —who confesses to less constant study of the modern house plans than he gives to their predecessors in old times—it does seem that the *boudoir* is not as well recognized a part of the lady's private domain as it was in England forty years ago, and in America both then and thereafter in houses of much more than common extent and splendor. But in any case the bedroom grows more and more like unto a pleasant private sitting room as the modern refinements have sway. And as to the bed, there is no reason why the housemaids should not resort to a scheme much in fashion in Germany and even in Eastern France when those were young who are now old—the custom in the "consulate of Plancus" was to do up the bed in the morning, piling the bed-clothes neatly folded, and the big soft Feder-bett or *plumet* together in the middle, and drawing a "spread" over the whole in such a way as to disguise utterly the shape and even the nature of the apparatus below. When turned up this way for the day the bed looked like anything but a place to lie upon. Then at supper time the mädchen came and "made the bed"—and then you saw what was meant by the touching old ballad, in good English and in still better and more original Scots, by the wail and prayer of the sick or sorrowful young man:

> "Oh, mother, mother! make my bed,
> And make it long and narrow."

But indeed that way of treating the bed so that it shall not look like a bed, is a device that might be followed. Far be it from this argument to insist upon the merits of the enclosed and wood-built standing bed-place like a bunk in an officer's cabin at sea; but where the bedstead and the bed (the terms being used in the more usual sense) are enclosed by a house which reaches the floor and conceals everything within itself, there is certainly an added freedom as to the use of the rooms for the purposes of life by day.

None of our examples to-day serve to remind us of any such possibilities. Fig. 86 shows the twin bedsteads now and for a dozen years much in fashion; Fig. 85 shows the brass bedstead which is greatly valued among sanitary scientists. Fig. 89 shows the old-fashioned bedstead built of hard wood in slender bars, each bar turned in the length into an appearance of a string of beads; Fig. 91 shows the old-fashioned double bed as modified by very recent tendencies of *l'art nouveau*. And yet in each one of these, always excepting Fig. 91, there is evidence that the room is in-

FIG. 88.—BEDROOM IN THE HOUSE OF J. T. PIRIE, JR.

Evanston, Ill. Myron Hunt, Architect.



FIG. 89.—BEDROOM IN THE HOUSE OF L. E. HOLDEN.

Cleveland, Ohio.

FIG. 90.—BEDROOM IN THE HEALY HOUSE.

Chicago, Ill. Myron Hunt, Architect.

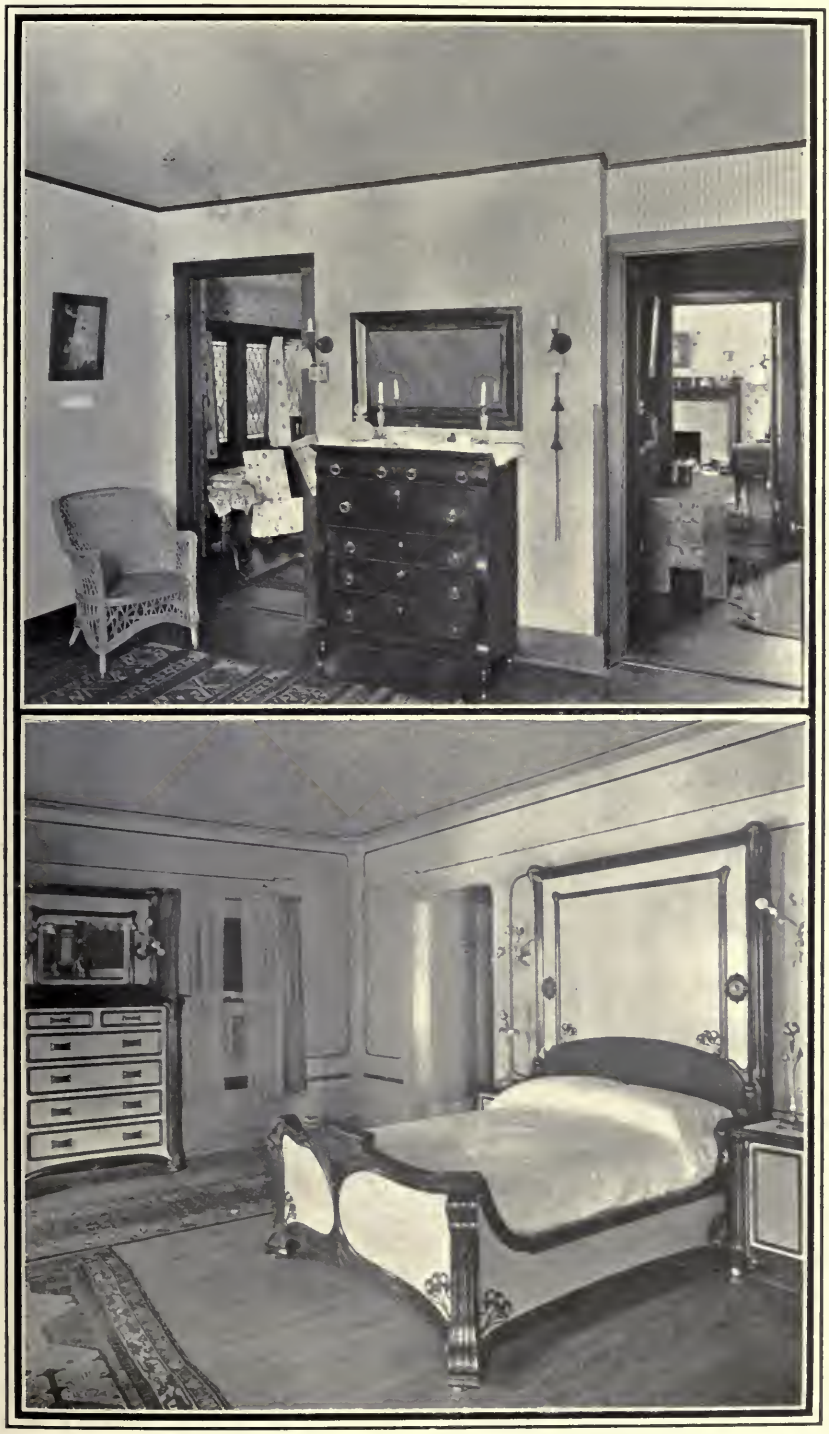


FIG. 91.—BEDROOM IN THE HOUSE OF H. H. JOHNSTON.

Cleveland, Ohio. Milton Dyer, Architect.



FIG. 92.—BOUDOIR IN THE HOUSE OF REGINALD DE KOVEN.

Washington, D. C.



FIG. 93.—BATH AND DRESSING ROOM IN THE HOUSE OF CLARENCE MACKAY.

Roslyn, L. I.

McKim, Mead & White, Architects.

tended for use as a sitting room, the room where the proprietess receives her lady friends to an indefinite extent.

Certainly the large room which we have numbered 86 is quite a model apartment. With its ample fireplace ready for immediate action; its long and low mantel-shelf with *objets d'art* ranged along it, pieces which are perhaps a shade less effective as decorations than those which the dining-room mantel-piece would demand; its toilet table and large glass, and its additional Psyche glass in which the whole skirt may be viewed even to the floor; its dainty little stand with two little drawers and yet capable of being moved about the room. In all we have the make-up of a charming room for daily life.

The room 85 again, with its delicate writing table, but large enough, solid enough for the hasty notes to friends which the occupant may choose to indict without going to the library below, with the fixed seat in the deep-seated window and the abundant lighting from at least two sides, speaks of the most pleasant and civilized life.

Fig. 89 is more old-fashioned. Here, with the complete set of furniture in a variety of white enamel ware, the wood itself concealed under the uniform coat of milky gloss, a method of adornment which is extended to the mantel-piece, is the prettiest room that we have yet mentioned. Alas, that it should be disfigured by the ugly monster under the fixed settle on the left—the steam radiator with its hideous lines and the consciousness that one has—that for seven months in the year that settle will be—not a pleasant seat in the window, but a screen and a disguise for the monster! The old hot-air furnace was a better thing in many ways than the more powerful modern apparatus.

The rooms which we have still to describe in brief, in which no bedstead is visible, are yet undoubtedly bed-chambers if one may read their disposition and their old furnishings aright. Thus Fig. 90 has the old-fashioned high bureau (not a tallboy, but a bureau so tall that it is removed from the modern class of "dressing bureaus" while yet it has a mirror hung on the wall above it) is either a bedroom or a large dressing room opening into the bedroom partly left seen on the left beyond. What one likes in this is the extreme simplicity of fittings and decorations. This is indeed the way to make a room pretty at the lowest possible cost, unless we are to understand the hanging of the walls as of a woven stuff of some kind rather than a wall paper, in which case a slightly greater expense will have been incurred. Fig. 88 is furnished with interesting pieces of old times, the bureau and the little round table of much older type than the two chairs, but all ancestral in their look. The room itself, with its comparatively low ceiling and its

very simple fitting up, is all that can be asked for as most simple and most gracious; though here again the dreadful radiator stands in the choice corner by the fireplace and explains why the fireplace itself is bare—without andiron and logs. Fig. 92 is a delightful room. Its fixed and permanent "finish" is not seen, for curtains conceal what otherwise would be in view; but the open book-case tells the story, and we learn that this also is of the simplest woodwork finished in white enamel, as indeed are the little writing table, the arm-chair drawn up to it, and so much of the door-trim as the curtain allows us to see. The chair and upholstered arm-chair covered with a striped silk material in the best taste of the eighteenth century, are grouped in the sentimental way with the low stand bearing the work-basket and the vase of roses; but let no reader suppose that the word "sentimental" is used otherwise than in the good sense of betokening sentiment. All this is of the olden-time genuine American refinement of ancestral dignity; but the writing table is crowned by a desk telephone and that feature "dates" the whole composition within a decade at least.

In all this nothing has been said of the folding bedstead. We are told, and on good authority, that they are made now-a-days in strict accordance with sanitary requirements, and it is true that even in high grade New York City hotels the modern invention has been introduced, and with such success that a room already free from the apparatus of the toilet as above described, is made into

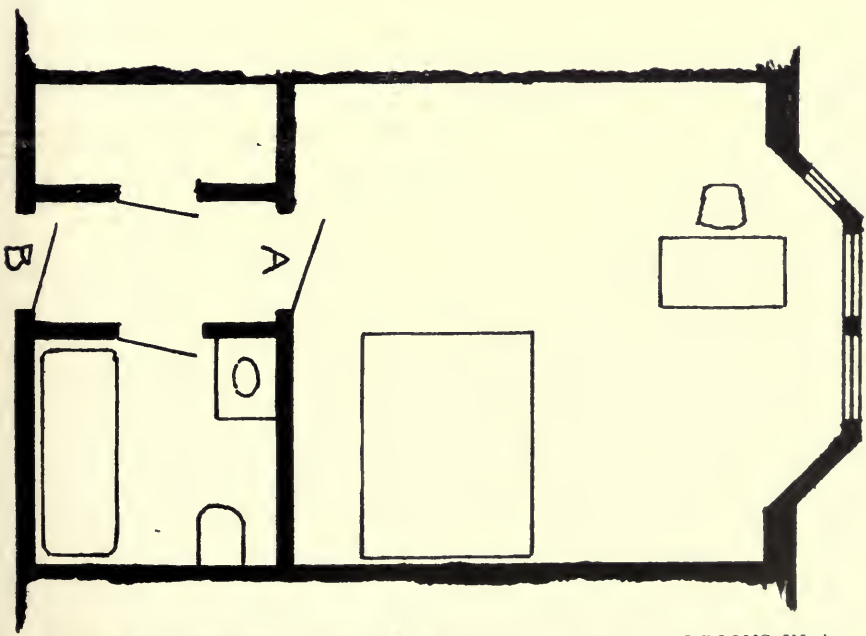


FIG. 94. SUGGESTED ARRANGEMENT FOR BED AND BATH-ROOMS IN A MODERN DWELLING.

a sitting room or anything else (at least in appearance) by the substitution of what seems a great book-case or mirror-fronted wardrobe for that which is indeed the place of slumber. This, however, is not quite our subject to-day. We might as well call it a bedroom when the bed is in another room, as when there is no longer any visible bedstead. Therefore it is that we are more inclined to consider one or two modern plans which seem to be useful in the direction indicated above—the direction of separating the toilet apparatus from the bedroom, and thereby making the bedroom a pleasant place in which to sit and, indeed, to live.

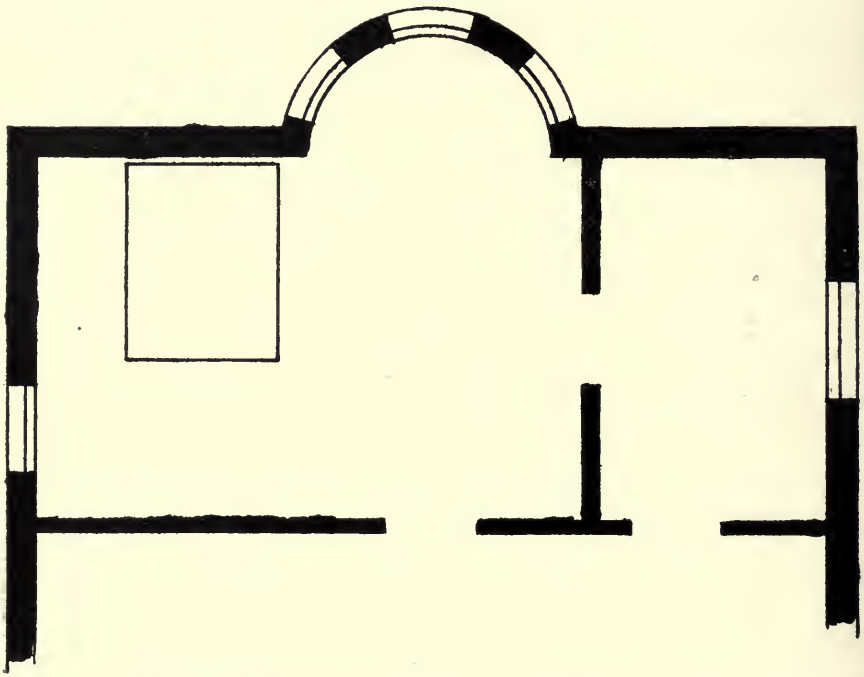


FIG. 95. ARRANGEMENT FOR BED AND DRESSING-ROOMS IN A MODERN DWELLING.

Here is a plan (Fig. 94) which is in use in some of the modern hotels, and its application to the private house is obvious and easy. The door at is not absolutely essential; its chief purpose, indeed, is to give the bedroom itself a more complete and carefully closed-in appearance when it is shut. The ventilation of the room by the aid of the fanlight over the entrance door B is a litle easier without the interposition of the door A. The use of such a door must always be a matter of private choice. The bath-room is large enough, of course, for its purpose, and there is a window in the wall which may or may not be left open for a large part of the day. The reader is reminded that with modern plumbing kept in good order the room in which the water-works are arranged is no harder to ventilate

than any other room in the house. The most troublesome of all its appliances, the waste pipes of the bath-tub and the basin, are themselves harmless under such modern conditions. The great closet opposite the bath-room should have an electric bulb inside the door and this will be sufficient to make the shelves above and hanging space below far more available and far more easy to keep clean and sweet than even in the homes of our ancestors.

The other room (Fig. 95), that with which a large dressing room is associated, has the exceptional advantage that the two divisions together occupy the whole end of the pleasant house in Cambridge in which they are to be found. The bedstead, set with its head against the wall, has a window opposite its foot, but this window need never be open during the hours of repose, because there is a bay window admitting the air all the time, and at the proper hours the blessed light of early morning which is still kept from shining into the eyes of the sleeper. The toilet apparatus being relegated to the smaller room on the right, there is left space for the book-case, for various tables, and most of all for a working table in the most charming of all situations, namely, in the throat of the bay window. The bedroom of which this is a reminiscence is certainly the pleasantest room in which the writer ever spent a night.

D. N. B. Sturgis.



FIG. 96.—KITCHEN IN THE RESIDENCE OF CHAS. T. BARNEY. McKim, Mead & White, Architects. Park Avenue, New York City.

THE PLANNING AND FURNISHING OF THE KITCHEN IN THE MODERN RESIDENCE.

AS a subject for discussion, it may seem, at first glance, that the kitchen of a house promises little of value or interest, at least to the male portion of the community. The conception and development of the drawing room, hall or library doubtless appear as being more attractive, but let us see if even the less prominent and often neglected kitchen may not afford profitable consideration. In animal life, human or otherwise, regular and continued existence is dependent upon the proper discharge of the functions of a digestive system. No less is a home dependent for its smooth running upon a well organized kitchen department. To this end, it must be well planned, well constructed and supplied with up-to-date furnishings. In regard to the latter, more particularly, the kitchen of to-day is a great transformation and departure from the same apartment in use one or two generations ago. In good old primitive days, kitchen and living-room were often one and the same. There is certainly a good deal of romantic charm about such a room in an old English or early American home, whether one has ever actually seen it or only become familiar with it in history and fiction. There were the wainscoted walls and beamed ceiling, well smoked and begrimed; the great brick fireplace with burning logs and steaming kettles on the swinging cranes; the floor of wide, well-worn boards; the unvarnished chairs and table of oak and the rows of burnished pans and old china on convenient racks. On the deep-set window ledge smiled potted plants and in a corner stood the spinning wheel. Connecting with it was the woodshed, which in turn opened into the barn. Everything was convenient and handy for the housewife and arranged with an idea of minimizing labor. There are, doubtless, many who now own palatial homes in town and country, which have every luxurious appointment, who feel a longing at times, for a good square meal in the old home of bygone days. Certain it is that brain as well as brawn have been produced by just such homely living.

In planning homes for the well-to-do of to-day, homes of generous size and luxurious appointments, it is to be feared that both architects and builders are at times at fault in their arrangement of the kitchen and its subsidiary rooms. In their desire to produce a handsome scheme for the showier rooms, they have been known to ignore the claims of that part of the anatomy of the house which is below stairs or placed well out of the public gaze. It would seem that to the kitchen was given such place and space

as remained after all other considerations had received attention. If not actually bad in size or shape, it is often a constant source of annoyance because of no attention being paid to utilitarian considerations. And when the lady of the house has condemned the kitchen she will likely make statements not calculated to swell the breast of the architect with pride, no matter how superb the façade of the house may be. With a hope of demonstrating the possibilities of the subject, let us take up some detailed considerations.

In the case of a town house, built, let us say, on a lot not a corner one, the location of the kitchen has limitations as to choice of exposure to any particular point of the compass. It is desirable that the exposure should be to the south or west or between the two. There is no denying the sanitary result of direct sunlight aside from the benefit of having the prevailing breezes for ventilation and our kitchen must be light, sanitary and easily ventilated. In the house in question, it will generally be located under the dining room or somewhere in that story having service from the street. It will probably be possible to get light from one side only. The windows should be ample, close up to the ceiling and as nearly in the center of the wall space as possible. To get cross ventilation is the problem. This should be accomplished without making use of the hall or other basement room by arranging a small air shaft or flue on the side of room opposite the windows. This shaft or flue is not expected to carry off the smoke arising from cooking operations which should be carried away in a vent flue, opening above the range. Of course, a window opening to the outside would be preferable to the air shaft or flue and the sill of such a window could well be kept high above the floor so as not to obstruct wall space more than necessary. Having arranged our kitchen with regard to lighting and ventilation, its access should be considered. The conventional long hall or passage to the front area, on the same level as the kitchen, is not susceptible to much variation, providing the latter is at the rear of the house. In the popular American basement plan, the service entrance is arranged at one side, with the main entrance in the middle or at the other side. Differences in floor levels are provided for by steps within the house. If in any wise possible, a sunken area reached by six or more outside steps should be avoided as being dangerous in winter and unsatisfactory at all times.

The suburban house, being capable of fairly ideal arrangement, there is no good excuse for an ill-arrangement of the kitchen. From utilitarian considerations it should be, and generally is, placed on the same level as the dining room and in a separate wing. In such a case, the matters of cross ventilation and lighting are not difficult to arrange and the desired exposure easily obtained.

The proper size for a kitchen is determined entirely by the actual service required of it. It should be compact without being cramped, with the idea of placing fixtures and utensils within easiest reach. Too much room is quite as undesirable as too little, and the happy medium should be carefully sought.

In regard to the fitting up of our kitchen, we should not allow anything to go into it that is not first class and thoroughly up-to-date. For flooring, tile and artificial stone are rejected by some as being unsatisfactory to work on, gradually affecting the feet. Some insist on a hardwood floor. Where conditions make it possible, however, an unglazed vitrified white tile is the handsomest and least absorbent material and the objection as to the effect on the feet can be overcome by using lengths of fibre matting where most wear comes. These can be removed at will and the floor scoured. Rubber tiling is also a suitable flooring material, and produces a handsome effect. It can be laid on wood or cement and is available under almost all conditions. The side walls should be finished with white glazed tile to a height of six feet or more, having a concave base moulding and neat cap piece, with such simple lines of colored tile as good taste would suggest. The walls above the tile and the ceiling may be covered with a material in the nature of an ail-cloth, made for that purpose and in appropriate colorings and patterns. Thus the room may be given a washing over all parts and kept clean and fresh as the most fastidious could require. The architraves or casings of the doorways should have white marble base blocks.

Thus far we have been constructing our room, the appliances necessary to make it of use now invite attention. The range is easily first in importance. It should be so located as to receive strong side light on its top and at the same time not be directly in a cross draught which would interfere with the fire. The so-called French range, with its black steel sides and nickel plated trimmings, is a handsome piece of kitchen furniture. At one end, it will have a section devoted to cooking with gas. At the proper height, a projecting curved hood will collect most of the smoke arising from broiling and allow it to be drawn into a vent flue in the chimney. Inasmuch as the hot-water boiler is not to be considered a handsome feature, it is well to conceal it if possible in some convenient closet or else place it on the chimney breast in a horizontal position above the range. This relieves the difficulty of keeping the floor clean under and behind it when it is set on a standard.

On the opposite side of the room from the range we may locate the sink and, between the two, place the table. A space of about five feet on each side of the table will be found sufficient to allow



FIG. 97.—KITCHEN IN THE RESIDENCE OF JOSEPH PULLITZER, East Seventy-third Street, New York City. McKim, Mead & White, Architects.



FIG. 98.—KITCHEN IN THE RESIDENCE OF JAMES HENRY SMITH.

No. 871 Fifth Ave., New York City. (Formerly the residence of the late William C. Whitney.) McKim, Mead & White, Architects.



FIG. 99.—KITCHEN IN THE RESIDENCE OF JAMES STILLMAN, New York City.

of easy movement and at the same time make a convenient disposition. The porcelain sink and drip-board and nickeled pipes make a fine effect. It is wise to keep as much as possible of the supply and drain piping exposed. It can be made far from ugly and any repairs can be made without cutting of walls and floors. The table can be arranged with convenient drawers for kitchen cutlery and other necessary small implements; also a deep metal-lined drawer for throwing refuse temporarily, to be emptied into the regular metal can or barrel every day. A lower shelf will be found handy. The top may be of wood or marble and have a narrow plate shelf down the center about fifteen inches above it, carried on end brackets and leaving the top open under it. The gas or electric light fixture should be above the table with a side bracket above the sink.

Very handsome refrigerators are in the market, having glass or tile linings and compartments for every conceivable use. The exteriors are of wood or tile and they are altogether a most sanitary place for the keeping of food. Some housekeepers prefer a built-in box but there is little, if any, gain in going to that expense as the portable ones meet every requirement. In the case of the town house, the refrigerator may best be located in the hall between the street entrance and the kitchen and handy to the latter. It should, of course, be set in a well-lighted place if possible. The drainage can be taken care of by arranging a pipe to discharge above a sink in the cellar.

The kitchen closet may be devoted almost entirely to the holding of pots, kettles and other bulky utensils. The tins and agate ware should be kept bright and clean and hung on brass hooks in rows on the kitchen wall where they may have more or less decorative value, appropriate to the room. Some of the dry groceries, most constantly needed, should be in a small and shallow wall cupboard or a narrow shelf within easy reach. A cold storage closet should be arranged for the keeping of vegetables and dry groceries in bulk, possibly in a laundry extension, off from the kitchen.

In the planning a town house with the kitchen below-stairs, the butler's pantry is of course located on the dining room level. A single window is sufficient for light, as a rule. Some arrangements permit of a skylight. Provision for the table china is made in dressers, with glazed doors. These should extend to the ceiling, if necessary, making storage cupboards of the upper portion. The pantry sink is of porcelain and of open plumbing type. To a height of two feet and eight inches, the dressers should be about twenty-two inches deep and be built with tiers of drawers, bread-cutting slides and a cupboard or two. The upper part of the dressers should be set about fifteen inches above the

lower and be about fifteen inches deep. The cabinetmaker often produces such fine results in constructing these dresser-cases that the mistress of the house will usually be proud to show them. In the center of the pantry may be placed the serving table. This will have a marble top and have a section arranged as a plate-warmer, steam heated. The dumb-waiter will occupy a convenient corner and provide direct communication to the kitchen. In a detached or suburban house with the kitchen on the dining room level, the pantry will have the same furniture but be so planned as to allow no view of the kitchen from the dining room and have two double-swinging doors between, with panels of glass. The pantry floor may be a choice of vitrified tile, marble and wood. A neat parquetry floor is appropriate. A kitchen pantry is a desirable feature, devoted to the keeping of kitchen crockery and the sugar and flour barrels. The latter are concealed in a sort of cupboard arrangement, with hinged tops which give easy access to the barrels and forms a shelf when not raised.

The laundry is a separate room, fitted with a suitable stove, a row of porcelain tubs and a closet for keeping clothes baskets, pins, lines and irons. The tubs must be well lighted. The floor may be of cement, laid off in small squares; the walls of glazed brick or painted plaster. Space must be allowed for a table and one or more ironing boards. Access to the yard must be easy and a steam clothes drier may be provided for use in inclement weather.

As an adjunct to the kitchen section of the house, a servants' hall is quite indispensable. It will serve as dining room and sitting room and be substantially furnished. It may or may not immediately adjoin the kitchen, but will be easy of access thereto. And having thus described our kitchen and its subsidiary parts, we may complete its usefulness by connecting it to the rest of the house by telephone to each bedroom, hall, drawing room and dining room.





UPPER ILLUSTRATION—CENTRAL GATES.
LOWER ILLUSTRATION—LAKE ENTRANCE GATES.

Residence of John A. McCall, Long Branch, N. J. Henry Edward Cregier, Architect.





GENERAL VIEWS.

Residence of John A. McCall, Long Branch, N. J. Henry Edward Cregier, Architect.





NORTH-EAST AND SOUTH-WEST VIEWS.

Residence of John A. McCall, Long Branch, N. J. Henry Edward Cregier, Architect.



FRONT VIEW.

Residence of John A. McCall, Long Branch, N. J. Henry Edward Cregier, Architect.



VIEW OF FOUNTAIN FROM PORTICO.

Residence of John A. McCall, Long Branch, N. J. Henry Edward Cregier, Architect.



FOUNTAIN IN WHITE GLAZED TERRA COTTA AND BRONZE.
Residence of John A. McCall, Long Branch, N. J. Henry Edward Cregier, Architect.



STAIRCASE IN SOCIAL HALL.

Residence of John A. McCall, Long Branch, N. J. Henry Edward Cregier, Architect.



SOCIAL HALL.

Residence of John A. McCall, Long Branch, N. J. Henry Edward Cregier, Architect.



VIEW OF SOCIAL HALL.

Residence of John A. McCall, Long Branch, N. J. Henry Edward Cregler, Architect.



VIEW OF STAIRCASE.

Residence of John A. McCail, Long Branch, N. J. Henry Edward Cregier, Architect.



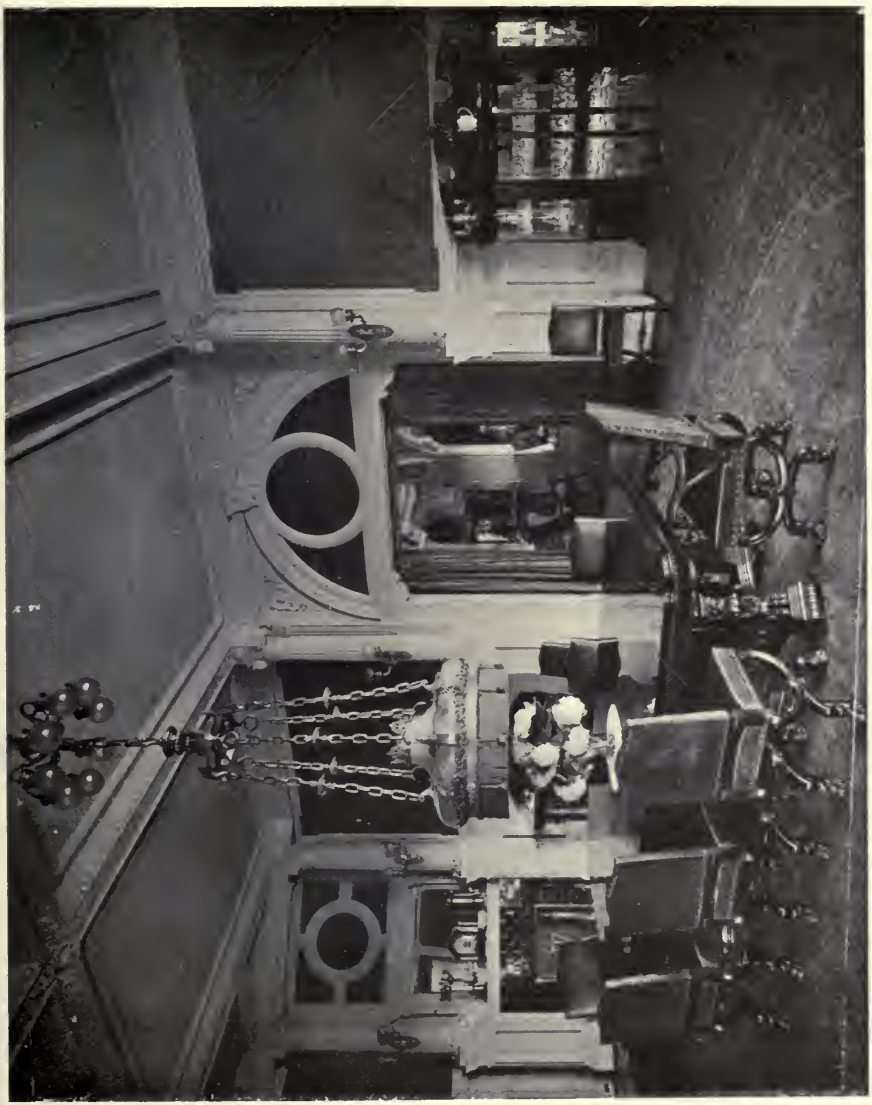
VIEWS OF MEZZANINE FLOOR AND OF SOCIAL HALL.

Residence of John A. McCall, Long Branch, N. J. Henry Edward Cregier, Architect



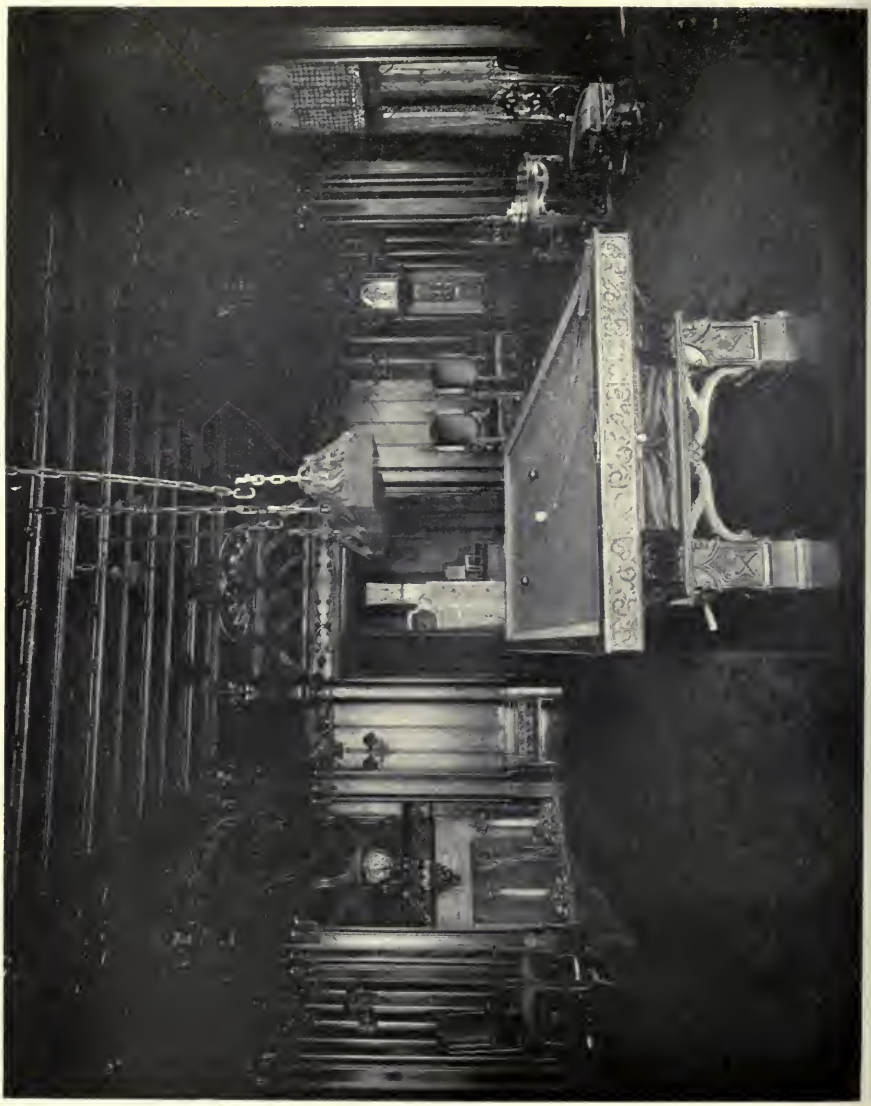
RECEPTION ROOM (GREEN AND IVORY).

Residence of John A. McCall, Long Branch, N. J. Henry Edward Ogden, Architect.



DINING-ROOM.

Residence of John A. McCall, Long Branch, N. J. Henry Edward Cregier, Architect.



Residence of John A. McCall, Long Branch, N. J. BILLIARD ROOM. Henry Edward Ctegler, Architect

The
Architectural Record.

VOL. XVI. NOVEMBER, 1904. No. 5.

THE WORK OF MESSRS. COPE & STEWARDSON.

THERE are two names that must remain forever writ large in the annals of American architecture—John Stewardson and Walter Cope; and this not only because of the work they did, the influence they were partially instrumental in establishing, the peculiar attractiveness of their personalities, but as well by reason of the tragic elements in the history of the firm that linked its founders in a common destiny.

In writing of the work of Mr. Day and his brother,* I have spoken of the merciful Providence that raised up at one time and in so fitting a place four such men as Mr. Eyre, Mr. Day, Mr. Cope and Mr. Stewardson. A more desperate crisis could not have existed, nor could the opportunity have been better improved, than actually befell. Against enormous odds, four men won a final victory, overthrew an enemy strongly intrenched in prejudice and indifferentism, established a new dispensation of "sweetness and light," and raised up a circle of enthusiastic and able followers. Then two of the four went to their reward, and those who knew them, know that it was good. How penetrating had been the personality of these men, how vital their inspiration, how sound their principles we know from the fact that death in no wise lessened the power of the great reformation, that to the two of the first four remaining have been added the successors of those who died and as well the many who, once within the influence of the first reformers, have remained faithful to their inspiration.

In a way, the work of John Stewardson and Walter Cope was accomplished. Had they continued for another quarter of a century they would have built many things far more beautiful than what they had already done, as will their successors, we surely believe; but these new monuments would have been but added joys to the eye, sources of pride to the communities they honored; they

*See Architectural Record, May 1904.

Copyright, 1904, by "Architectural Record Company." All rights reserved.
Entered May 22, 1902, as second-class matter, Post Office at New York, N. Y., Act of Congress, of March 3d, 1879.



FIG. 1. STAFFORD LITTLE AND BLAIR HALLS, PRINCETON UNIVERSITY.
Cope & Stewardson, Architects.
Princeton, N. J.



FIG. 2. NEW DORMITORIES, UNIVERSITY OF PENNSYLVANIA.
Cope & Stewardson, Architects.
Philadelphia, Pa.



FIG. 3. PEMBROKE COLLEGE, BRYN MAWR COLLEGE.
Bryn Mawr, Penn. Cope & Stewardson, Architects.

could not have added in forcefulness to the example already set, to the standard already established. Why? Simply because these were even now declared by the University of Pennsylvania, Princeton and Bryn-Mawr with all possible vigor and conviction. We may refuse to learn the lesson. If so, the reason lies in our stubbornness, not in the inadequacy of the precept. If we now remain unconvinced, a thousand more buildings could not have changed the issue.

Personally, we must grieve forever over the loss of two altogether lovable men; professionally we can say, and without irreverence, "Lord, now lettest Thou Thy servants depart in peace, according to Thy Word; for our eyes have seen Thy salvation."

The things that Eyre, Day, Cope and Stewardson stood for can defy death; those that have laid down their earthly instruments of service leave the world richer on their going and the cause is not weakened thereby.

What are these things? Well, apart from those personal considerations which were so dominant but which are hardly to be spoken of here, they are, it seems to me, three in number, so far as they apply to the art of architecture; and these three things are absolutely and forever indispensable in any honorable practice and achievement: personality, good taste, poetry. There are many other things also necessary, but they are emphasized by other men, and the three qualities named above are often forgotten or overlooked by those who are fighting most strenuously for the other valuable considerations that chance to appeal to them most strongly.

Here lies the greatest artistic value of the principles and labors of the Philadelphia school; their insistence on certain essentials that are apt to be forgotten by the exemplars of the new mode in the art of architecture who were trained in a school that is weakest in these three respects.

While all the Philadelphia firms of the architectural reformation insisted on all three of these qualities, I feel that each in a way stood for one in particular: Mr. Day, as I have already said, for good taste, Mr. Eyre for personality, Cope and Stewardson for poetry. Each denomination includes many things: good taste implies a feeling and a demand for abstract beauty of line, form, color; personality presupposes individualism, genuineness, faithfulness to self and to ideals; poetry includes emotional appeal, historic suggestion, ethnic and racial memories. In this respect the work of Cope and Stewardson is one of the most singular examples of concentrated and conscientious work we have on record; in the quadrangles of the University of Pennsylvania, before the rocky towers of Princeton, the orieled walls of Bryn-Mawr, we are so dominated, controlled by the glamor of poetry, the force of historic and ethnic suggestion, that it is some time before we can recover the critical spirit, weigh and analyze the component parts of the great whole and say whether all is good or whether under the veil of emotional suggestion may not lurk weaknesses and defects.

Consider, for example, Figures 1, 2 and 3—three typical views of Princeton, Bryn-Mawr and the University of Pennsylvania. This is poetry, sheer, unmitigated romance. One thinks of the turbulent affectations of Harvard, a "rogues gallery" of discredited architectural superstitions; of Yale, where new wine is put into old bottles and old wine into new bottles and the uncongenial receptacles jostle cheek by jowl; or of that other, where Rome (or Halicarnassus) strikes hands with Puritan thrift, and then, looking around, one thinks back to Oxford and Cambridge and Winchester, and the subtle obsession of the ivied Old World, the call of inextinguishable race-memory enters in and blots out reason and analysis.



FIG. 4. THE LOGAN OFFICES.
1305-1307 Arch Street, Philadelphia, Pa. Cope & Stewardson, Architects.

Shake off the dream, for it betrays judgment. There is something here that is not there, and it is good; how good I do not dare to say, but there is another side to the shield. Poetry is sometimes the poet's undoing, and, on the other hand, chaos does not always destroy good sense, nor an alliance of Rome and economy —of means and emotion—make impossible the attainment of sound proportions and logical forms.

It is probably impossible for any one man to judge architecture judicially—or any other form of art for that matter. The bent of his mind is in one of two directions: towards logic or poetry; towards organic development, law and order, exact relations, scientific, even mechanical proportions, the subordination of the individual to precedent and dogma defined *ex-cathedra*, or towards romance, emotionalism, personality; the voicing of the eternal ambitions and aspirations and devotions of mankind; service and self-sacrifice, awe, majesty and power, dreams and aspirations; above

all, worship, reverence for the past with all its connotations of heroism and chivalry, of splendid achievements and no less splendid failures. In a word one holds by eternal law, the other by indestructible race fealty and religious continuity.

Yet neither Paganism nor Christianity has been unmingled in the past of the elements that we now predicate exclusively of each. The Greeks reared on the Acropolis an architectural composition almost as full of emotional import and poetic quality as an English abbey or a Venetian palace, and so did the Romans on the hills around the Forum. In France, in the thirteenth century, a style was developed as logical, classical, calm and law-abiding as that of the time of Pericles. The construction of this epoch was absolute science reduced to its ultimate terms, the design—as witness the West front of the Cathedral of Our Lady of Paris—was pure classicism translated into the new language of a new people.

In spite of the sports of ungovernable genius, however, the general proposition holds good that there are two types of mind, one of law and logic, the other of poetry and adventure; hitherto these have existed sequently, now they live side by side, and at the very moment when a powerful tendency towards the former emanates from New York, the latter has developed its greatest exponents in Philadelphia. Some day a man or men may arise who will marry the two in indissoluble union. When this day dawns we shall have "a new style of architecture" and art a new lease of life, but the glimmerings of this dawn are not as yet discernible.

In the work of Cope and Stewardson, then, we find a new manifestation of one of the salient elements in mediæval civilization. I do not mean by this that it is reactionary, artificial, "The Case of M. Waldemar" put into architectural form, for this very element is, or should be, not of mediævalism alone, but of all true Christian civilization of whatever time, of whatever people. In our vanity we had forgotten it, and to that extent our civilization ceased to be Christian. The Philadelphia group has stood and is standing for nationality, for ethnic continuity and for the impulses of Christian civilization.

The unmistakable note is struck in the very beginning. I am not sure, but I think there is manifest internal evidence that Figures 4 and 5 are of almost the earliest work of this firm, when the poignant poetry of Stewardson's nature was first clamoring for expression. The fanciful little offices in Philadelphia are of course "sketch-book architecture" without much scale and with less logic, but they are pure poetry and promised vastly for the future. The cottage in Chestnut Hill is far more serious, for it has in addition to its charm, self-restraint and the indigenous quality. In Figures 6, 7 and 8, we see what came of this—three consummate examples

of consistent domestic building, two of them showing the masterly development of local types, the third the lawful adaptation to American conditions of the ancestral style in England, a patrimony that none can take away. Compare these four examples of good American domestic architecture with the polished French villas now so much in evidence and say whether or no the instinct of the poet is not sometimes a safer guide than the elaborate and specious dicta of an over-trained theorist.

The same thing holds in the more stately form of design that is involved in the city residence. In Figure 9, we see, as must have been the case considering its evident date, the trail of continental journeyings, perhaps also the influence of Mr. Eyre and Mr. Day, but in Figures 10 and 11, we find the fine fruition of the beginnings in calm, convincing, high-bred work that is local in its primary assumptions, logical in its perfect adaptation to contemporary conditions.

It was, of course, in the great group of dormitories for the University of Pennsylvania that Cope and Stewardson first came before the entire country as the great exponents of architectural poetry and of the importance of historical continuity and the con-



FIG. 5. HOUSE AT CHESTNUT HILL.

Philadelphia, Pa. Cope & Stewardson, Architects.



FIG. 6. THE IVY CLUB.
Princeton, N. J. Cope & Stewardson, Architects.

notation of scholasticism. These buildings are among the most remarkable yet built in America, yet they may be and must be criticised. They fail in certain important particulars, and the fact that they succeed supremely in others, while nearly all their defects have been outgrown in later work, justifies such criticism.

First of all, let it be said at once that primarily they are what they should be: scholastic in inspiration and effect, and scholastic of the type that is ours by inheritance; of Oxford and Cambridge, not of Padua or Wittenberg or Paris. They are picturesque also, even dramatic; they are altogether wonderful in mass and in composition. If they are not a constant inspiration to those who dwell within their walls or pass through their "quads" or under their vaulted archways, it is not their fault but that of the men themselves. Thus far all is good and a source of indelible thankfulness. I submit, however, that there are faults, and to me they are these. In the first place, they fail in architectural proportion; not in composition, that is another matter, but in the relationship of parts, the dimensions and disposition of door and window openings, the delimitation of vertical and horizontal spaces, the emphasizing of lines, contours and bounds. One feels this in the triangular court (Figure 12) where the lights of the mullioned windows are much too wide

for their height, where an attempt has been made by disproportionate decoration to raise the many little doors into artificial prominence, where no strong, calm verticals appear to minimize the confusion of multiplied mullions. One feels it in the lack of scale of the oriels in Figure 13, and in the minute and confused parts of the arched gateway. Particularly does it strike one in the Memorial Tower (Figure 14) where the horizontals are without rhythm or sequence, where every vertical is adventitious, not structural, while the whole effect is somewhat unbalanced and top-heavy. It is in a way the difference between thirteenth century Gothic in France and England, between the West front of Notre



FIG. 7. LLOYD HALL, HAVERFORD COLLEGE.

Haverford, Pa. Cope & Stewardson, Architects.

Dame and that of Salisbury; and as they learned better in England later on, so did Cope and Stewardson when they came to work in Princeton and Bryn-Mawr.

A second defect lies in the detail. Here it almost seems as if the architects had been betrayed through the arguments of archæology and consistency. In the style they accepted as their base, that of the reigns of King Edward VI. and Elizabeth, the detail had been degraded and Germanized. This debased detail Cope and Stewardson accepted as a part of the style. It seems to me that here was a case where consistency was not a jewel, but paste. If a thing is not intrinsically beautiful it is valueless, no matter how consistent it may be. Classical principles of architecture were pro-

found and sublime; the detail with which they were overwhelmed in the sixteenth and seventeenth centuries was exceedingly vicious. If in accepting the underlying principles we swallow the bitter pill of vulgarized detail, we become copyists, not architects. There is only one consistency in architecture, and that is faithfulness to sound principles of structural development and to the production of absolute beauty. Cope and Stewardson did everything men could do to redeem Elizabethan detail, but they could not quite succeed in making a silk purse out of a sow's ear.

The tower has been severely criticised as an archæological abstraction reared to commemorate contemporary American heroism. The criticism seems just to me, though only in a measure. Amer-



FIG. 8. COLONIAL RESIDENCE.
Princeton, N. J. Cope & Stewardson, Architects.

ican heroism harks back to English heroism; the blood shed before Manila and on San Juan Hill was the same blood that flowed at Bosworth Field, Flodden and the Boyne. Therefore the British base of the design is indispensable, for such were the racial foundations. On the other hand, this tower was of the nineteenth century and the men it commemorated were American; it seems plausible therefore to plead that something of this time and place should be expressed. How this might have been done will be shown some day by what will be done, but now the question is involved and tenebrous and no adequate answer is forthcoming. One thing we may say, however, and that is that the decoration might have been significant; the grotesques might have been descriptive, not historic; the empty shields increased in size and number and charged

with national heraldry, while the whole tower, primarily commemorative, not utilitarian, might have been given a military suggestiveness instead of the domestic quality now imposed by the apartment house fenestration.

Lest this may all seem severe and unfriendly criticism, let me say once more that in spite of the defects which have seemed to me worth noting, the whole work is masterly in conception, true in impulse and far less subject to detailed condemnation than the vast majority of work. It is so nearly right in every way that it will bear criticism when less significant work would sink under it.



FIG. 9.—DR. HARTE'S RESIDENCE, 1503 SPRUCE ST.
Philadelphia, Pa. Cope & Stewardson, Archts.

Moreover, as I have already said, Cope and Stewardson never made the same mistake twice, and the lessons learned here bore fruit in Princeton and Bryn-Mawr. The latter work is peculiarly interesting, for it shows how steadily the firm continued its development. The early portion shows a distinct and considerable advance beyond the University of Pennsylvania dormitories, better in scale, in proportion; more self-restrained. Rockefeller Hall, now in process of construction, is better still in each regard. Yet the whole lacks nothing in beauty and picturesqueness and poetry. To be sure the material is better, that very wonderful flat-bedded stone that is such a striking evidence of the goodness of Providence in furnishing architects with miraculous means to good ends, but even this mercy may be used to a man's destruction, and the fine quality of the work itself has more to do with the result than the building stone so splendidly used.

It is in Princeton, however, that the climax is reached, at all events so far as the scholastic work is concerned. The Gymnasium seems to me half-hearted and perfunctory, an attempt to clothe a modern proposition in "Monk Latin" as it were; not to be compared for a moment with Messrs. Frank Miles Day and Brother's logical and consummate treatment of the same problem, but Blair and Stafford Little Halls are exactly the reverse of this in every



FIG. 10. 1631-1633 LOCUST STREET.

Philadelphia, Pa. Cope & Stewardson, Architects.



FIG. 11. RESIDENCE IN PHILADELPHIA.

Cope & Stewardson, Architects.



FIG. 12. TRIANGLE, DORMITORIES—UNIVERSITY OF PENNSYLVANIA.
Philadelphia, Pa. Cope & Stewardson, Architects.



FIG. 13. DORMITORY BUILDING—UNIVERSITY OF PENNSYLVANIA.
Philadelphia, Pa. Cope & Stewardson, Architects.



FIG. 14. MEMORIAL TOWER.
Dormitories, University of Pennsylvania.
Philadelphia, Pa. Cope & Stewardson, Architects.

respect. If there is anything more poetic, collegiate, racial and logical than the composition of these two buildings in Figure 1, so far at least as the product of the last four centuries is concerned, I do not know what it is. The thing is neither monastic nor mediæval, it is without affectation or theatrical quality. It strikes exactly the right note, it is sufficiently British, sufficiently American, a perfect model of sound design and impeccable theories. Figure 16 is in itself a testimony to the substantial accuracy of the strictures I have ventured to make on the University of Pennsylvania dormitories, for it shows every one of the faults altogether eliminated.

I said above that Cope and Stewardson never made the same mistake twice: I am afraid this is not strictly true in the case of Washington University, St. Louis. There seems here an unmistakable sign of unexpected reaction, if, as I assume is the case, the designs are later in date than those for Princeton. The general scheme is blocked out with a masterly hand, but such of the individual buildings as have been erected seems to me curiously lacking in personality, while the sense of proportion and composition falls far short of that shown in Princeton and Bryn-Mawr. Moreover, there is a recurrence of the Elizabethan detail so much in evidence in the Philadelphia dormitories, with the same disregard of absolute beauty in decoration. I cannot feel that University Hall is notably interesting, either in design or detail, while there is a lack of scale and harmony between the ornament of the tower and its mass and materials (Figure 18). That the Schools of Architecture and Engineering (Figure 17) are not thoroughly good solutions of the contemporary architectural problem, I feel very strongly, and this in spite of certain refinements in composition that are the mark of good style. That the ornament of a building such as this should consist in more than the stock properties of impossible festoons of fruit, cupids' heads and cartouches (Figure 19), I also feel strongly. When a Greek drama has been translated into Latin, from this



FIG. 15. ENTRANCE TOWER, PEMBROKE HALL, BRYN MAWR COLLEGE.

Cope & Stewardson, Archts.



FIG. 16. STAFFORD LITTLE HALL.
Princeton University.
Princeton, N. J. Cope & Stewardson, Architects.

language into Italian, thence into Low Dutch, and so into English, there is not apt to be much of the original left, and it is hardly a good model to use as a basis for creative work.

Thus far all the work we have considered has been of one general type, either some adaptation of some form of English collegiate or, in the case of domestic work, of early American types. The Law School of the University of Pennsylvania (Figure 20) is a kind of connecting link, a most able and interesting example of a venture into a late Stuart field, the true "Queen Anne." The style is handled with fine independence and energy, a new and vital spirit has been breathed into the dry bones and they live again, not as a phantasm but as a new organism. Here the detail, founded on a better prototype, is plausible, adequate and if not perhaps intrinsically beautiful, well placed, in good scale and entirely decorative.



FIG. 17. SCHOOL OF ARCHITECTURE.
(Washington University.)
St. Louis, Mo. Cope & Stewardson, Architects.



FIG. 18. TOWER OF UNIVERSITY HALL.
(Washington University.)

St. Louis, Mo. Cope & Stewardson, Architects.



FIG. 19. DOORWAY OF BUSCH HALL.
(Washington University.)
St. Louis, Mo. Cope & Stewardson, Architects.

The interior (Figure 21) is also very delightful in its clever use of late seventeenth century English models.

The Leamy Home, Mt. Airy, Pennsylvania (Figure 23), is a good example of the amazingly competent manner in which these architects use our own early models as a basis for contemporary work, the same so-called "Colonial" they have made so living in domestic work. Handled by the average architect of the progressive and thriving suburbs, "Colonial" is a very terrible thing indeed, and it needs sometimes that really great men should deal with it in order to remind us of the homely but sterling virtues it once possessed. As Cope and Stewardson work in it, it is a thorough joy. Frank, direct, straightforward, the exterior developing accurately from the interior, and that exclusively from certain definite needs; delicate in its detail, simple in its masses, it is a constant incentive to self-restraint—not the last of the basic principles of architectural design.

We now find ourselves confronting a building with which it is somewhat hard to deal, the "Institution for the Instruction of the Blind," in Overbrook, Pennsylvania (figures 28, 29). Let us admit at once that in the abstract it is altogether wonderful, and definitely charming. If one were to find it in South America, or Mexico, or Southern California or Florida, one would accept it at once as local, triumphant, convincing. But is it as one actually discovers it, in a most respectable suburb of the *ci-devant* Quaker town of Philadelphia? It is of the South in plan, conception, material, color, detail. As the National Pavilion of the Republic of Mexico in a World's Fair, it would be a triumph, but is it a serious contribution to the development of a national architectural style in North America? In and by itself it is a masterly mingling of Central Italian and Latin American suggestions, consistent, harmonious and vastly edifying; but—is it a blind asylum in an old Northern State, founded and settled by sturdy English Quakers? Of course, if there is no such thing—for ourselves—as a real architectural language, if we are to abandon the effort to develop this, contenting ourselves either with personal and individual expression or the housing of a score of different interests each in its own historically suggestive shell, then this sort of thing is all right. But are we? Can we give up our hope quite yet? Can we not throw our little weight on the side of the centrifugal, not the centripetal forces? If we do something may come of it in the end, and we all may get nearer together, concentrating and uniting at least in one more manifestation of national racial art.

Of the latest product of the firm of Cope and Stewardson, the successful design for the Municipal Building for the District of Columbia, it may be said that it shows, as does the last work considered, how easily this remarkable firm adapts itself to new ways, new conditions. It is an essay in the very latest architectural fashion now current, the classic of the Ecole des Beaux Arts tinged by the dominating genius of another remarkable firm, that of Carrére and Hastings. The design contains nothing of the intense personality manifested in so nearly all the other work the former have produced; it shows nothing of the intimate genius of John Stewardson or Walter Cope. It is simply an honest, straightforward rendering of a modern problem, couched in a pre-arranged style. It is all handled seriously and with thorough ability, but it is an abstraction, not a personal manifestation. If this is a defect, and as matters now stand none can say this with any sure conviction, it is not to be attributed to the firm in any respect, for a "personal manifestation" would probably have stood not the ghost of a show of consideration with any jury that might have been chosen to pass upon this particular competition. Cope and Stewardson



FIG. 20. LAW SCHOOL.
(University of Pennsylvania.)
Philadelphia, Pa.
Cope & Stewardson, Architects.



FIG. 21. INTERIOR OF LAW SCHOOL.

Philadelphia, Pa. (University of Pennsylvania.) Cope & Stewardson, Architects.

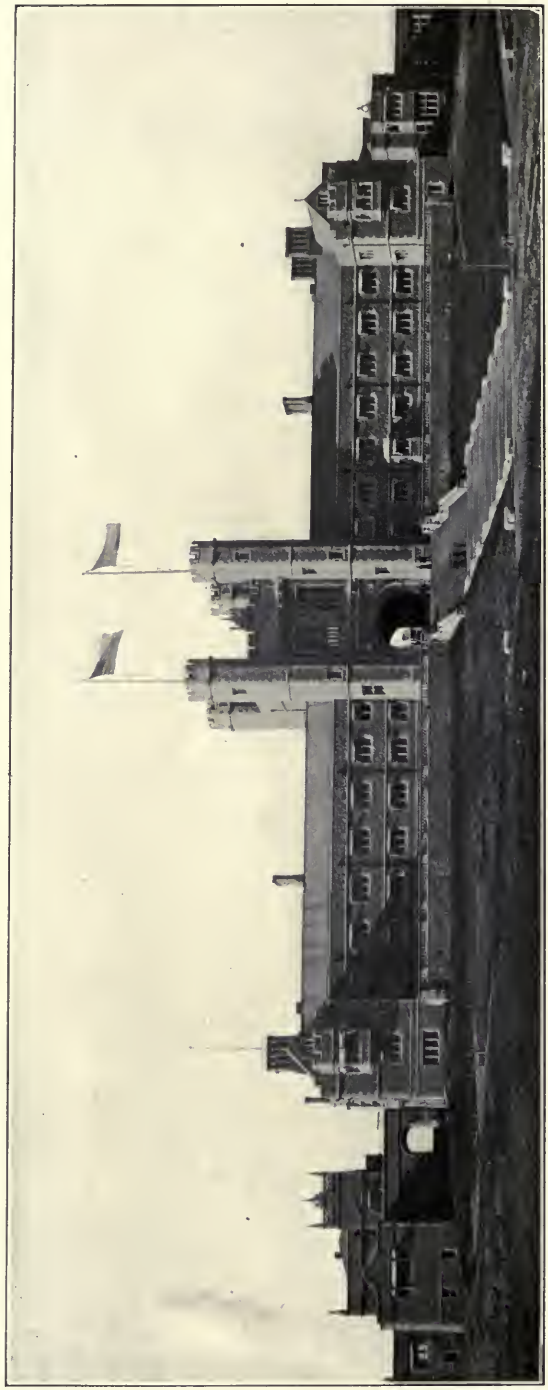
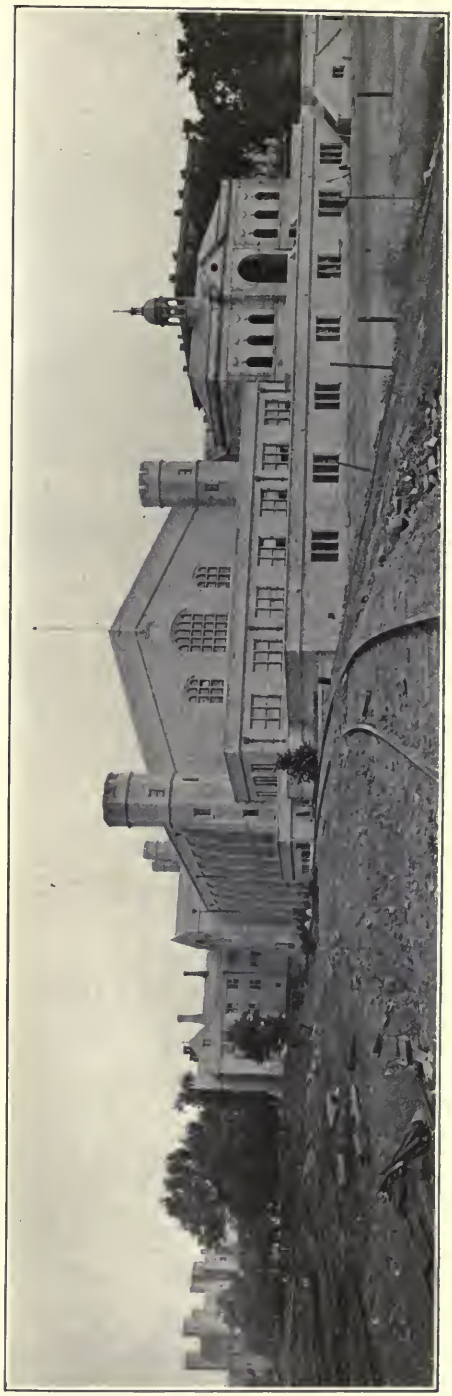


FIG. 22. UNIVERSITY HALL.
(Washington University.)

St. Louis, Mo.

Cope & Stewardson, Architects.



THE GYMNASIUM, PRINCETON UNIVERSITY.

Cope & Stewardson, Architects.

Princeton, N. J.



FIG. 24. MAIN ENTRANCE TO PENNSYLVANIA INSTITUTION FOR THE INSTRUCTION OF THE BLIND, OVERBROOK, PA.

Near Philadelphia, Pa. Cope & Stewardson, Architects.



FIG. 25. PENNSYLVANIA INSTITUTION FOR THE INSTRUCTION OF THE BLIND, OVERBROOK, PA.

Near Philadelphia, Pa. Cope & Stewardson, Architects.

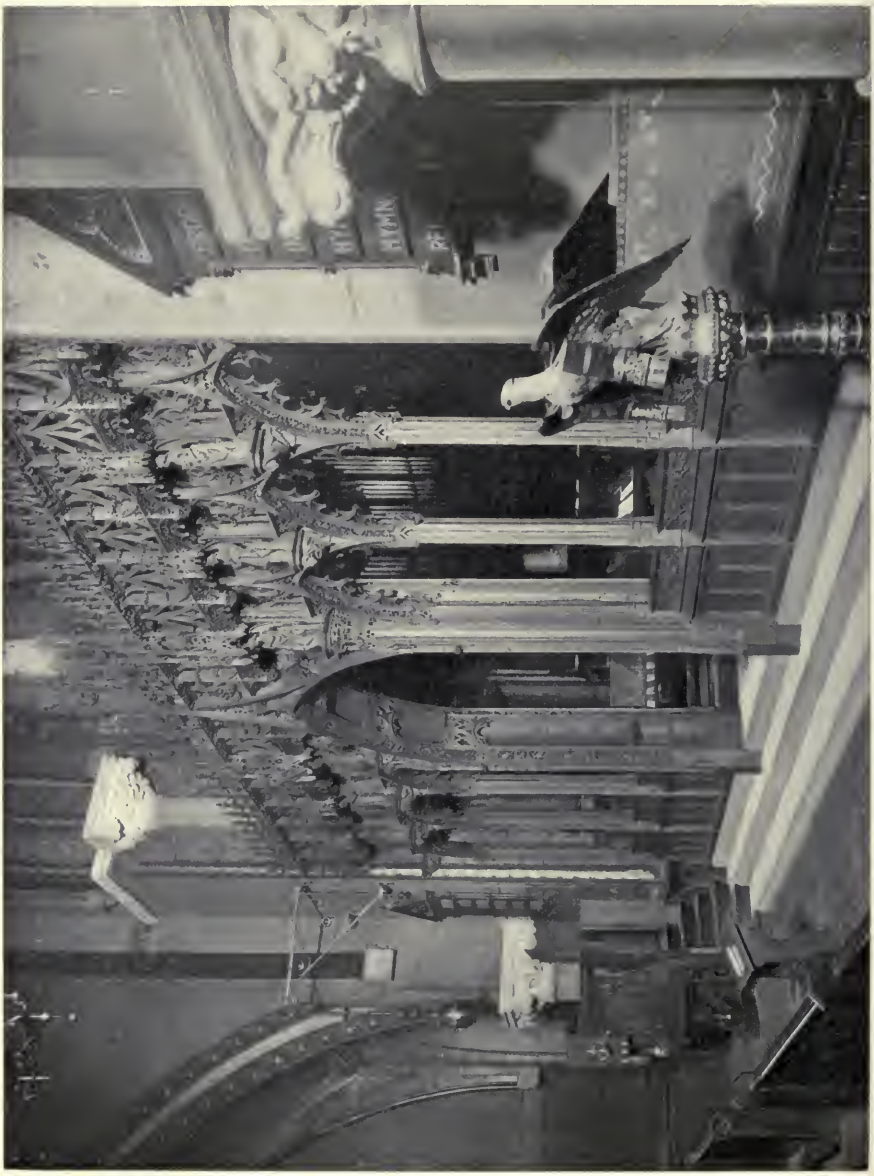


FIG. 26. CHOIR SCREEN, ST. LUKE'S CHURCH. Cope & Stewardson, Architects.
Germantown, Pa.



FIG. 23. LEAMY HOME.

Mt. Airy, Philadelphia, Pa. Cope & Stewardson, Architects.

simply bowed to the inevitable, and made the best of it, and this best was notably good.

In what I have already written about the work of Frank Miles Day and Brother, I have dealt at some length with the Archæological Museum in Philadelphia, that wonderful building where there was certainly enough of "personal expression," and where four brilliant men met on common ground for the production of a masterpiece. What Mr. Cope's share was in the work, or Mr. Stewardson's, no one will ever know, but a measure of the honor goes to them as well as to Mr. Eyre and Mr. Day, for all were equal.

I have spoken of hardly a tenth of the work of this firm, and yet I have left myself little space to consider one very important category in which, indeed, they have as yet unfortunately done little,



FIG. 27. THE LIBRARY—BRYN MAWR COLLEGE.

Bryn Mawr, Pa. Cope & Stewardson, Architects.



FIG. 29. INTERIOR ST. MARK'S CHAPEL.

Philadelphia, Pa. Cope & Stewardson, Architects.



FIG. 30. ENTRANCE TO THE ENGINEERING BUILDING.
(University of Pennsylvania.)
Philadelphia, Pa. Cope & Stewardson, Architects.

but that little is exceptionally good. I refer to Ecclesiastical design, a place where their peculiar genius was keenly demanded. None could do better work than they, but the demand for this quality of service is not very insistent just now, standards having become so confused that the tenth rate is frequently considered quite good enough. The design for the Chapel for Washington University hardly seems to me either organic or convincing, but it is never fair to judge a work from a drawing alone. On the other hand, the Choir Screen in Germantown (Figure 26) and the little Chapel for St. Mark's Church, Philadelphia (Figure 29) leave very little to be desired. The former is a perfect delight and shines like the sun in what are evidently very awful surroundings. There is the touch of consummate art in every line. The Chapel is more reserved and severe, but it is just as satisfying and makes one regret very bitterly that no great church now stands bearing the name of Cope and Stewardson.

Ralph Adams Cram.

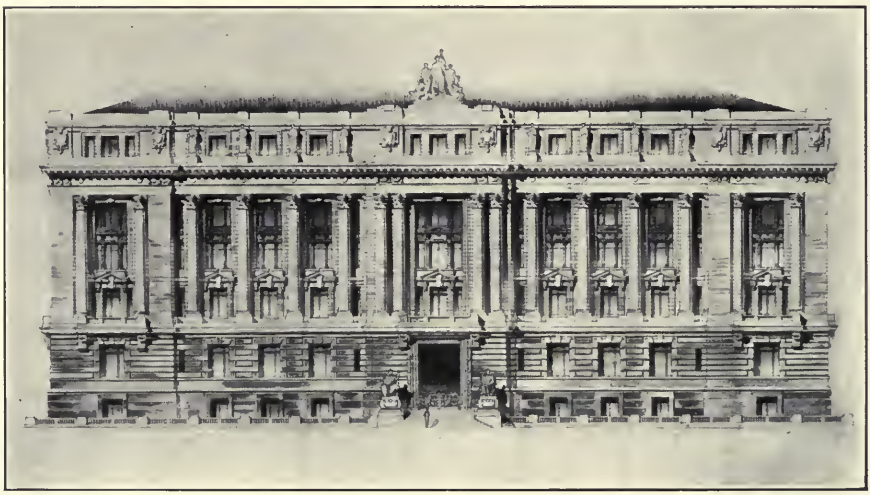


FIG. 28. THE MUNICIPAL BUILDING FOR THE DISTRICT OF COLUMBIA.
Washington, D. C. Cope & Stewardson, Architects.

ARCHITECTURAL REFINEMENTS IN FRENCH CATHEDRALS.

Second Paper.*

The Cathedrals of Paris and Amiens.

A GLANCE at the illustrations of my August paper, as connected with the dimensions of the original buildings which are mentioned in the text, will show that these illustrations were selected, with one exception, from churches of small dimensions, and in several instances from side aisles of these churches, which are of smaller dimensions than the naves. The apse of the Balaban Aga Mesjid (Fig. 1 of the August Number) is only 12 ft. in height. The height of the piers in St. Mary Diaconissa, at Constantinople, is 33 ft. In St. Jean at Caen this height is 35 1-2 ft. In St. Loup at Chalons it is 32 ft. In the side aisles of St. Alpin and Notre-Dame at Chalons, the heights of the pilasters illustrated were respectively 14 ft. and 15 ft.

The Widening in Notre-Dame.

These remarks bear on the possibly inadequate impression which the photographs of the outward divergence in Notre-Dame at Paris and in Amiens Cathedral (Figs. 1 and 4) may make upon the reader, as compared with the pictures of churches of smaller size, in the preceding paper. It must be borne in mind that in cuts of these small dimensions we are now representing naves which are 147 ft. in height at Amiens and 110 ft. in height at Paris. Consequently the divergence of the piers at Amiens, which is nearly 3 ft., is not very clearly seen in Fig. 4.

The divergence at Paris in the piers at the crossing of nave and transept is more easily seen in Fig. 1, although it is of less amount (about 21 inches in the piers on the choir side of the transept), because the church is not as high as at Amiens and the picture is consequently of larger size, as compared with the original. For one who is familiar with the large photographs of Notre-Dame in the Brooklyn Museum, Fig. 1 is, however, somewhat disappointing, as compared with the enlargement from the same negative.

In this exhibit of photographs of French cathedrals, which was installed early in June, there are twenty-eight photographs of Notre-Dame which are 25x35 inches (inside photograph measure)

*In continuation of the paper which appeared in the August Number, on "Architectural Refinements in early Byzantine Churches and French Cathedrals." The illustrations of these papers are from photographs of the Brooklyn Museum surveys, of the series of 1903. The purpose and effects of the refinements described in these papers have been discussed at considerable length in previous publications, relating to other churches. See, for instance, Brooklyn Museum Memoir No. 2, "The Architectural Refinements of St. Mark's at Venice," published by the Macmillan Company.



FIG. 1. THE NAVE OF NOTRE-DAME.

Note plumb-line suspended from triforium on the right, beside the pier at the crossing. The chandelier chain does not offer a plumb-line, because it is tied out of perpendicular.

and seventeen photographs which are 18x22 inches. Five photographs of size 25x35 inches and three photographs of size 18x22 inches are devoted to the vertical curves and the widening of the nave in Notre-Dame. For readers in the neighborhood of New York an inspection of these photographs may be recommended. The difference in size between Fig. 1 of this paper and the corresponding large photograph, No. 65, of the Brooklyn exhibit, from the same negative, makes a surprising difference in the appearance of the divergence of the piers at the transept.

In the size of the last-named photograph it even appears more striking than it does in the church itself, where the convergence due to perspective tends to diminish its effect.

In spite of the somewhat inconspicuous character of the divergence, as seen in Fig. 1, it may be asserted with great confidence that no reader of this paper who examines the Brooklyn exhibit (or who examines the building itself) will find it to be inconspicuous or unimportant. Meantime, let a slip of paper be laid across Fig. 1, over the piers at the transept next the choir and marked with a pencil, so that the width of the pavement between these piers may be compared with the width at the capitals.

As a matter of fact, and speaking of observation on the spot, there is no church so far examined in northern France, aside from that of St. Quentin, in which the nave widening is so conspicuous as it is in the farther pair of piers at the crossing in Notre-Dame. As regards the general oversight of this fairly conspicuous fact in Notre-Dame, it may be due to the effect of perspective convergence which tends to make the diverging vertical lines appear parallel. Psychologists have taught us that there is a habit of "expectancy" in the eye which leads us to see what we expect to see, or are in the habit of seeing, under the given circumstances. This is probably another reason why this feature in Notre-Dame is so generally overlooked.*

Aside from the church of St. Quentin and from other churches illustrated in the August Number, and from Notre-Dame, the most conspicuous cases of widening so far observed in France are in St. Pierre at Caen, in the church of the Monastery of Montierneuf at Poitiers, and in the Cathedral of Amiens. Less conspicuous, but well-defined instances are the cathedrals of Rouen, Laon, Rheims, Chalons, Beauvais, Strassburg, and the church of St. Remi at Rheims. In all of these cases the vertical lines also bend or curve. The best French instance of a nave showing uniformly employed and strongly defined vertical curves without widening, is the Cathe-

*This habit of "expectancy" has another result, after one has begun to look for vertical curves and for the widening construction. It then leads one sometimes to see these phenomena where they do not exist. This, at least, is my own experience, so that I have grown to trust nothing but a plumb-line or a carefully made photograph, in the less conspicuous cases.

dral of Noyon, as far as recent observations have gone. The facts are well represented for all these buildings by the Brooklyn exhibit.

For a complete record of all the observations of 1903 in France Museum Memoir No. 4 (Macmillan) may be consulted. This includes mention of the churches and cathedrals which were examined and in which the phenomena described have not been observed. Among these are the cathedrals of Bayeux, Soissons, Poitiers, Chartres, Tours, the churches of St. Ouen and St. Maclou at Rouen, of L'Épine near Chalons, and the Sainte Chapelle at Paris.

Vertical Curves in Notre-Dame.

To return to Notre-Dame at Paris, no time should be lost in mentioning that the marked divergence in the second pair of piers at the crossing (side of the choir) is not to be found to the same extent in the first pair (side of the nave) or in the vaulting-shafts of the nave, in which last, however, the vertical curves are much more prominent than they are in the great leaning piers at the transept.

As for the vaulting-shafts of the choir they have pronounced curves, but they converge instead of diverging vertically. The amount of this narrowing in, for any one pair of vaulting-shafts, has been estimated with approximate accuracy as from 6½ to 7 inches. Thus each vaulting-shaft leans toward the centre of the choir from 3 to 3½ inches, in its upward curve. The vaulting-shafts which bound the walls of the choir before it turns to the curve of the apse neither converge nor diverge. They are perpendicular.

As regards the body of the church we record first the marked difference of inclination as between the two pairs of piers at the crossing. Those next the nave diverge about 12 inches, as contrasted with a divergence of 21 inches for the pair next the choir. The vaulting-shafts of the nave curve much more perceptibly, but have the same amount of divergence, approximately, as the first pair of piers at the crossing, in amounts varying from 7 inches to 12 inches. The amounts of divergence are estimated individually as follows, for the first five pairs of vaulting-shafts, in order from the transepts toward the main entrance—10 inches, 10 inches, 7 inches, 9 inches, 12 inches. The last measurement will hold very closely for the 6th and 7th pairs of vaulting-shafts (in order from the transepts).

The foregoing estimates of measurement are confined to the vaulting-shafts and do not include the round piers which support them, because the alignments do not correspond. The piers lean slightly into the nave, thus increasing the effect of the bend above. For instance, the fourth pier from the entrance on the right was



FIG. 2. NOTRE-DAME, PARIS. PIER AND VAULTING-SHAFT LOOKING UP THE PIER.

found, by plumb, to lean into the nave 0.23. (The piers at Amiens also bend into the nave.)

We come next to the great piers of the tower construction, fronting the organ gallery, which are perpendicular as regards the north and south direction, and without curvature.

These piers and all the piers and all the vaulting-shafts of the nave lean laterally west toward the entrance in amounts ranging from six inches upward and increasing in amount toward the entrance, a disposition which contributes to a greater appearance of widening than actually exists, when viewed from the west, but a separate article will be needed to explain these arrangements. They are mentioned now in passing.

As regards variations from the true perpendicular in the north and south direction, they may now be rehearsed, as follows, moving in the direction from entrance to choir.

Piers at the organ gallery—perpendicular. Seven pairs of vaulting-shafts in the nave—strong vertical curves, with divergence ranging from 12 to 7 inches (the individual shafts thus bending outward, and away from the nave, from 6 to 3½ inches each). Piers at the crossing (side of the nave), widening of 12 inches. Piers at the crossing (side of the choir), widening of 21 inches. Vaulting-shafts of the choir—strong vertical curves leaning into the choir, with convergence from 6½ to 7 inches, or individual inward bends of from 3 to 3½ inches. Vaulting-shafts terminating the side walls of the choir—perpendicular.

Fig. 2 shows a vertical curve in the nave of Notre-Dame, as seen when looking up the pier. This photograph shows the second vaulting-shaft on the left of the nave, beyond the great piers next the organ gallery.

As far as my information goes, the widening in Notre-Dame has attracted attention only in consequence of the publications which have been made in the Architectural Record and in the Brooklyn Museum Memoirs, regarding similar phenomena in Italy. Mr. Nelson Goodyear observed it soon after he had assisted in the survey of Sta. Maria della Pieve, in 1895. It was subsequently brought to my notice by the careful observations of Professor John F. Weir and Professor Charles S. Hastings, of Yale University.

Leans of the Transept Vaulting-Shafts.

A most remarkable arrangement in the transepts and transept galleries of Notre-Dame is that the vaulting-shafts of the transepts lean off laterally right and left, so that they continue and repeat the leans of the great piers at the transept. The significance of this observation will appear to every expert who notes that these in-



FIG. 3. NOTRE-DAME, PARIS. LEFT TRANSEPT GALLERY, LOOKING TOWARDS THE CHOIR.

clinations are constructed laterally in the solid wall. The columns of the triforium arches are also set parallel with these leans.

If close attention be given to Fig. 3 it will be found to illustrate these arrangements. This cut represents one of seven 5x7 photographs which were devoted to this special class of facts in Notre-Dame, of which four have been enlarged and are now exhibited in Brooklyn.

Fig. 3 is taken from a point of view in the left (north) nave gallery, looking across the left transept to the choir. On the extreme right of the picture is seen the lean of the great pier at the crossing of the left transept and choir. (This is the second of the great piers seen on the left in Fig. 1). In the foreground, on the right, Fig. 3, is a leaning column from which two plumb-lines are suspended. Next to it, in the foreground, is a pier which, on its outer exterior side (fronting on the transept), is a portion of the vaulting-shaft which rises from the pier to the vaulting above. On the side of this pier facing the reader is another plumb-line. On the left, in the foreground, one of the leaning columns of the next adjacent bay is seen and from this another plumb-line is suspended.

These four plumb-lines in the foreground enable the reader to observe the leans of the vaulting-shafts on the farther side of the transept. These vaulting-shafts are imbedded in the wall of the transept and their inclinations are constructed laterally in the wall, so that every suspicion of accidental masonry movement is eliminated. Thus, note first on the left of the picture, the vaulting-shaft on the opposite transept wall, as compared with the perpendicular which is established by the plumb-lines in the foreground.

Note next, the pier in the centre foreground, and then the rib of the vaulting-shaft across the transept, which is visible beyond the right side of this centre foreground pier. The rib leans parallel with the foreground pier. Other photographs show the entire shaft of which this rib is a portion.

Similar facts will appear for the vaulting-shafts of the near side of the left transept, if viewed from the choir. Similar facts appear on both sides of the right transept, as attested by photographs in Brooklyn.

From pavement to vaulting, the leans of these vaulting-shafts, on the choir side of the transepts, amount to about one foot. As measured for the heights directly accessible in the galleries, with a line of 10½ ft., the following results are obtained for the left transept gallery, part of which is seen in Fig. 3:

All leans to the left—pier next the transept end walls 0.15; column 0.12; column* 0.13; pier* (both sides) 0.14, 0.14; column* 0.24; column 0.20; pier next the nave 0.10.

*The stars mark the columns and piers on which the plumb-lines are seen in Fig. 3, in order from left to right.

Plumb-measurements of the same average amount, all uniform in direction, that is, all leaning north in the north transept galleries and all leaning south in the south transept galleries, have been published in Museum Memoir No. 4 for the other transept galleries and are verified by the exhibited photographs.

It is a general rule that the columns lean more than the piers of the same height which belong to the system of the vaulting-shafts. The reason is obvious, that in the case of the latter a small fraction of a uniform lean which runs from pavement to vaulting, is in question, whereas the columns are not portions of this continuous system and could consequently be given a somewhat more defined inclination.

Notre-Dame at Paris does not stand alone in this remarkable feature of the parallel transept leans. Similar arrangements are found in the transepts at Amiens, as subsequently mentioned and illustrated.

Similar facts are found in the transepts of the Church of St. Quentin and four enlargements of them are exhibited in Brooklyn.

Before taking up the Amiens Cathedral a few words may be given to the explanation of these inclinations of the transept triforium columns and transept vaulting-shafts, as described for Notre-Dame. They are probably intended to avoid a contrast between adjacent perpendicular and inclined lines. This amounts to saying that the effort was to evade a conspicuous prominence of the primary leans of the great piers, which would be more easily noted, if perpendiculars were found immediately adjacent to them. It seems unnecessary to dwell on the fact that they emphasize the constructive existence and predetermined artistic purpose of the primary leans of the great piers.

The Cathedral of Notre-Dame has other, and still more remarkable, constructive refinements, to which a following paper will be devoted. For the moment, our attention is now turned to the Cathedral of Amiens.

The Cathedral of Amiens.

It is difficult to realize in looking at a cut of the dimensions of Fig. 4 that the widening of the nave at Amiens is very nearly 3 ft. and that in the building itself the vertical curves are of a clearly visible character.

This instance of the inadequacy of a small cut for illustration of well-defined deflections of considerable amount in cathedrals of lofty dimensions leads me to again emphasize the importance of large photographs for these cases. The Brooklyn Museum exhibit for Amiens includes four large photographs of the nave (all 25x35



FIG. 4. CATHEDRAL OF AMIENS. RIGHT SIDE OF THE NAVE.

inches), one of which is taken from the pavement, while others are taken from the organ loft and from the choir triforium. In all of these pictures the curves and the widening are shown clearly.

It has been mentioned in the August Number that the widening, as found in St. Loup at Chalons, is known to the architect in charge and that it has been recognized by him as constructive. It was mentioned in the same article that the widening at St. Quentin was known to the recently deceased architect in charge as constructive. The widening at Amiens is also familiar to the cathedral authorities and to other residents of the town, and there is moreover an explanation given regarding it.

The matter came to my knowledge in the following way. Having presented my photographing permit from the Ministry of Cults at Paris to the cathedral authorities on Sept. 14th, 1903, I was accorded all possible facilities for the prosecution of my work. I did not, however, at this time advise them of its nature or purpose. During the inspection of the cathedral I observed, in the setting of the piers of the transepts, a system of inclinations resembling that which has just been described as existing in the transepts of Notre-Dame at Paris.

This involved the photographing of all these leaning piers and the hanging of plumb-lines beside them from the triforium galleries (see Fig. 6). The placing in proper position of these plumb-lines was naturally a matter of some considerable trouble and personal activity, which was calculated to attract attention. Moreover as the lines hung down from the triforium gallery, revealing the marked inclinations of the piers, beside which they were placed (maximum cases about 5 inches for a height of 40 ft.), they were calculated to arouse the curiosity and interest of passing spectators.

It was under these circumstances that I was accosted by the *Bédeau*,* M. Régnaut, whom I found to be a gentleman of great intelligence. He was much interested in the leans of the transept piers, which were previously unknown to him, but when I mentioned the widening of the nave it appeared that he was thoroughly conversant with it. This was my first advice that the nave widening at Amiens was known to the cathedral authorities.

Further conversation with the *Bédeau* and with the *Suisse* developed the fact that the peculiar construction of the nave had been known for over forty years, at least. There is nothing to show at present that the knowledge concerning it has ever been lost in this locality.

The current explanation of the construction is that it is intended to throw the thrust of the vaulting directly against the flying-but-

*The office of *Bedeau* at Amiens is not at all to be confounded with that of the English church Beadle. It appears to combine clerical and lay duties about the cathedral of considerable importance.

tresses; thus avoiding a movement of the masonry by anticipating its natural action, and by making the strain direct instead of indirect. This explanation is insufficient to cover the facts for the transepts and so appeared to M. Régnaut.

I shall presently mention characteristics of the phenomena in other localities which would also make this explanation appear to be an insufficient one. It is, however, an interesting fact that whereas some experts in the United States have been disposed to attribute all instances of the widening to movements of the masonry, the church authorities of Amiens have been persuaded that the widening was intended to prevent such movements.

It may be added here that the divergence of the piers at Amiens is even mentioned in Baedeker's "Northern France," although it is incorrectly described. Baedeker says . . . "The vaulting is borne by 126 remarkably bold columns, tapering toward the top, so that the vaulting seems actually wider than the pavement below." An inspection of the Brooklyn Museum photographs of the Amiens nave, taken from the organ-loft, will show that the columns of the nave do not taper. They curve vertically outward and away from the nave, without diminishing in size. It is also misleading to say that the vaulting seems wider than the pavement. It is actually wider.

The amount of the nave divergence is estimated by the cathedral authorities as being one metre. This estimate tallies very closely with my own observations. By sighting on a plumb-line which was dropped through an opening in the vaulting near the piers at the transept, one of these was found to bend into the nave about 0.20 and then to curve outward about 1.40. The total divergence would thus be about 2.80. As distinct from the varied arrangements in Notre-Dame and at St. Quentin, those at Amiens appear to be uniform and parallel through the choir and nave with the exception that the great piers at the entrance next the organ-gallery do not diverge and that those next them diverge less than the rest.

The Triforium at Amiens.

Fig. 5 represents one of four similar pictures which were taken inside different portions of the triforium at Amiens, all of which are represented by large photographs in the Brooklyn exhibit. This triforium gallery runs entirely around the cathedral, with a uniform width of about 3 ft.

In looking at Fig. 4 of the nave, it will be observed that if the piers diverge outward at the height of the triforium, it ought to be possible to photograph these divergences from the rear, inside the triforium. This is what has been done in Fig. 5. Two plumb-lines



FIG. 5. CATHEDRAL, AMIENS. CHOIR TRIFORIUM, NORTH SIDE.

are seen in the picture, but rather dimly. The reader will obtain the best indication of the purpose of this view by comparing the outer left boundary line of the picture, which furnishes a true perpendicular, with the adjacent pier, which leans to the right, and away from the choir. The facts are uniform in all parts of the triforium, and the amount of inclination is uniform, on both sides of the choir, and on both sides of the nave. Photographs were made on both sides of the choir triforium and on one side of the nave triforium. These photographs would be sufficient to establish the constructive facts at Amiens, even if they were not verified by local observers.

Fig. 6 represents one of a series of ten enlargements in the Brooklyn exhibit which show the Amiens transepts. Eight of these pictures are 25x35 inches.* The description of the arrangements of the transept piers at Amiens will be assisted by reference to a plan of the cathedral. Unless reference is had to such a plan it should be remembered that, beside the continuation of the single aisles of the nave into the choir and ambulatory, the choir has two additional aisles, making three in all, for the choir and for the corresponding divisions of the transepts. (The outer one of these additional choir aisles is so short as to come under the designation of a chapel, if preferred.) Thus each transept has two pairs of piers, beside the piers bordering on the nave.

Of these piers, all four bordering on the nave lean into it to the height of the capitals, each about 0.40 in 40 ft. (The outward bends for the nave widening begin higher up. These bends are clearly shown in the Brooklyn photographs). All four piers next adjacent lean in the opposed outward direction, about 0.30 on their inner sides. This gives a widening at the openings from the transepts into the aisles of the choir and nave of about 0.70 in 40 ft. The outer sides of these same piers, bordering on the second choir aisles, are closely perpendicular. (See the left pier in Fig. 6.) These piers are consequently tapered about 0.30.

The four exterior piers (next the transept walls) all lean outward on the inner side, about 0.40. (See the right pier in Fig. 6.) They appear to be tapered slightly on the outer sides, but the leans continue on this side.

The facts, as above stated, are attested by the Brooklyn photographs, with plumb-lines for each individual pier, as far as the leans are concerned, and the measurements, for the leans as above given, were obtained in each individual case by careful sighting on the plumb-lines. As regards the perpendiculars and the tapering, the facts are believed to be as stated and have been carefully tested

*In the summer of 1903 fifty-five negatives were made in Amiens Cathedral and eighty-four negatives were made in Notre-Dame at Paris. Nearly all of these are available for enlargement and very few of them duplicate the same facts. The Brooklyn exhibit includes twenty enlargements for Amiens and forty-five enlargements for Notre-Dame.



FIG. 6. CATHEDRAL OF AMIENS. FROM THE SECOND LEFT AISLE OF THE CHOIR, LOOKING WEST. VIEW OF THE LEANING MULLION.

in various ways, although there are two instances in which Renaissance monuments placed against the piers, interfered with dropping the plumb-lines for more than half their height.

Aisles or aisle openings widening on both sides of one aisle have been, so far, only observed at Amiens and at St. Quentien. Generally the aisles widen, if at all, only on the exterior sides, as in St. Alpin at Chalons (Fig. 7, August Number). Fig. 12, of the August Number, illustrates the aisle widening at St. Quentin and will show more clearly than verbal description what the arrangement is at Amiens, unless the Brooklyn photographs are consulted. At St. Quentin the vaulting-shaft on the exterior sides of the aisles curve laterally toward the perpendicular in the solid transept walls above the widening, as attested by four photographs, Nos. 37-40 inclusive, in the Brooklyn exhibit, so that there is no doubt about questions of construction.

As regards the outer transept piers at Amiens a conclusive proof of constructive intention is found in the parallel leans of the vaulting-shafts which are connected with the transept walls and partially attached to them. (Note the shaft in Fig. 6, on the right of the sculptured shrine.) These may be observed for both transepts in Nos. 58 and 62 of the Brooklyn exhibit, and are best seen in these large pictures.

The most astonishing feature of these arrangements is the constructive parallel leaning of the window mullion which is shown by Fig. 6 (No. 62 in Brooklyn). There are four churches known at present in which windows are built to make alignments parallel with leaning piers. St. Loup at Chalons is illustrated for this point in the August Number (Fig. 6). A transept window at St. Quentin which has this peculiarity is shown by No. 298 of the 5x7 prints of 1903. For Notre-Dame at Paris the windows will be illustrated in the next article.

The facts regarding these parallel window-leans are fairly incredible from the standpoint of our present stock conceptions of mediaeval architecture as lacking in subtlety of design. Therefore special mention is now made of the large photographs in Brooklyn for the windows of Notre-Dame, to be described in the next paper. In Notre-Dame the facts are uniform on opposite sides of the church. I am unable to speak for Fig. 6 on this important point, because the leaning mullion at Amiens was first noticed in the 5x7 print during the return voyage to the United States.

It should be added that the outward leans of both sets of piers in the transepts are repeated in the piers and vaulting-shafts of the choir aisles (see Brooklyn photographs). Consequently the inclinations of the transept piers may most easily be explained as related to the widening system of these aisles, for they form a portion

of the same vista. This relation is also made probable by a parallelism of tapering (on the outer sides) in the middle series of choir piers, which are perpendicular on their outer sides, like the corresponding transept piers. This tapering adds to the widening effect of the second choir aisle. The original explanation of the whole arrangement may therefore be preferably sought in the vista of the choir aisle of which the transept piers form a portion, and for which the widening effect was considered desirable.

Leaning Triforium Transept Columns at Amiens.

Fig. 3 has illustrated the parallel leans of the triforium transept columns in Notre-Dame at Paris. These are also found at Amiens and at St. Quentin. For Amiens they are shown by Nos. 54 and 60 of the Brooklyn enlargements and by a 5x7 photograph (No. 266) which has not yet been enlarged. In this picture, which is a special detail, taken in the triforium, for the triforium columns, plumb-lines are attached to them. It must, however, be added that these minor parallel leans at Amiens are confined to the triforium bays which are adjacent to the great piers. The leans are moreover carried out in a rather half-hearted manner and the masonry is not in good condition. For a sceptic the parallel leans of triforium columns at Amiens would hardly carry conviction. It is only when they are known in such thoroughly positive and systematic appearance as holds for Paris and St. Quentin that this particular phenomenon at Amiens appears worthy of attention. At St. Quentin the triforium parallel leans are far more definite and important. They are very well shown by Nos. 37, 38, 39, 40, of the Brooklyn exhibit, in all of which plumb-lines appear.

Transept System of Vertical Curves at Amiens.

There is at Amiens a well-defined transept system of vertical curves which intersects the nave system. The widening is less than in the nave, but the curves are stronger. It is a general rule that where transepts exhibit the vertical curves the widening is less conspicuous than in the nave. This is notably to be observed at St. Quentin and in Notre-Dame at Paris. At Beauvais, however, the widening is greater in the transepts than in the choir.

The transept vertical curves at Amiens are well shown by Nos. 44 and 45 of the Brooklyn exhibit. In Notre-Dame the widening of the transepts is not easily perceptible and can hardly be more than a foot.

The Amiens Explanation of the Widening.

The interesting fact has been mentioned that the widening of the nave at Amiens has been long known to the cathedral authorities and to other residents of the town as a constructive fact and that it is believed by them to be a device for the promotion of constructive solidity and in order to throw the thrust of the vaulting directly against the line of resistance which is offered by the flying buttresses. That this theory prevails at Amiens must surely be interesting to those who have doubted the constructive existence of vertically diverging lines in mediaeval churches, on the ground that such a construction would have been detrimental to the safety of the building and, so to speak, contrary to public policy or to common sense.

It appears reasonable to suppose that movements in the masonry, due to vaulting thrust in lofty Gothic churches, would be minimized by leaning the thrust directly against the line of the resisting force. It thus appears more than probable that the Gothic builders knew that they were not risking stability by the outward leans in their lofty interiors.

On the other hand, it must be remembered that we are dealing with a local explanation which could not, and does not, take into account a multitude of facts which have been collected on this topic by the present investigation from other localities. Farther than this the explanation does not account for all the facts which are now made known at Amiens, viz. those relating to the vertical curves of the transepts, to the leaning piers of the transepts and to the widening system of the aisles.

We will first consider the local explanation for Amiens as applied to Amiens alone. It may be noted that this explanation omits consideration of the curves in the nave and does not cover the vertical curves of the transepts. (These curves are well shown by Nos. 44 and 45 of the Brooklyn exhibit.) The widening is so slight in the transepts that the curve is palpably the essential thing in that instance, at least. Moreover the thrust of the vaulting which spans the transepts is taken up laterally, for the most part, by the walls and piers of the nave and choir, and no other counter-resistance is needed.

If constructive solidity, as regards the vaulting thrust, were the main object desired we could not understand the marvellous pains which have been taken with the north and south inclinations of the transept piers. It is also clear that the bending into the nave of the lower part of the great piers at the crossing, which is a means to a widening effect in the openings from the transepts into the aisles, does not add to structural stability.

Leaving now the special problem at Amiens to consider the facts observed elsewhere, it will appear that they are sufficient to set aside the idea that constructive safety was the primary motive of the widening construction. In Notre-Dame at Paris the most pronounced widening, that of 21 inches in the second pair of piers at the crossing, is exactly at the point where no constructive danger exists. For the great piers at the crossing (Fig. 1) lean out against the resistance of the entire transept construction; whereas in the nave, where the clerestory walls are upheld only by the flying buttresses, the widening is much less than 21 inches (from 12 to 7 inches), although the curvature is stronger.

Again, if the nave widening at Paris were explained as at Amiens there would be no explanation for the convergence of vaulting-shafts in the choir. As different phases of curvature the arrangements of the nave and choir at Paris would come under one explanation.

At St. Quentin it also holds that the leans are much stronger at the transepts, where no constructive precautions were necessary, than they are in the nave. (They develop gradually in increasing amount from the entrance and are strongest in the choir.) Again in St. Jean, at Caen,* we find the widening only in the piers which lean against the transept walls, where no precautions were necessary, and in the body and choir of the church the widening does not occur. From the standpoint of optical appearances, as distinct from that of construction, we could understand that the piers at the transepts were leaned more than in the nave, at Paris, at St. Quentin and at Caen, because they were the largest and the most prominent.

Turning to the Italian churches, we find the important churches of Sta Maria della Pieve, at Arezzo, and of Trani, to be timber-roofed and not vaulted. Here, again, the explanation could not apply. Then there are the cases like the apse of the Balaban Aga Mesjid (Fig. 1, August Number), like the apse of the Schottenkirche at Vienna, like the apse of St. Radegonde at Poitiers, the apse of the Capella Palatina at Palermo, and the window of the facade of St. Ambrogio at Milan, all of which are clearly decorative instances, wholly independent of constructive considerations. For the phenomena of the entrance court of St. Ambrogio at Milan† the given explanation would not apply.

Other adverse considerations are connected with the outer leans in side aisles, which are faced by chapels having walls of such depth as to make any expedient against the operation of thrust unneces-

*Fig. 4, August number.

†Museum Memoir No. 2, Plan 1 and Fig. 10. For the window of S. Ambrogio see Fig. 9 of the same Memoir.

sary. Such are St. Loup, Chalons; St. Alpin, Chalons; St. Eustorgio, Milan; St. Ambrogio, Milan; St. Michele, Pavia.

If the stability of the building were the main purpose of this construction we should find no cause for the elaborate systems of parallel leans at points where constructive stability is not in question. For instance, let the ground-plan of St. Marks, with plumb measurements, as published in Memoir No. 2, be examined for the facts holding of the pilasters in the angles of the transepts.

From the same point of view consider the parallel leans in the vaulting-shafts of the transepts of Notre-Dame at Paris, as described in this article. At St. Quentin it can be shown beyond debate that the widenings of the openings from the transepts into the aisles can have only an aesthetic purpose, because the vaulting-shafts which are imbedded in the transept wall curve back laterally toward the perpendicular above the arches, as already mentioned. (See Nos. 37-40 of the Brooklyn exhibit.) The examination of these photographs is alone sufficient to refute the supposition that constructive stability can be the sole explanation of this device.

The explanation current at Amiens has moreover been devised to meet the peculiar conditions of the flying buttresses of the Gothic, without reference to the Romanesque churches, which show the widening construction and without knowledge of their existence.

It may again be considered a most important suggestion that the given construction would not be detrimental to stability in the naves of such churches as S. Michele at Pavia, St. Mark's at Venice and Sta. Sophia at Constantinople, but it is probable that no engineer would consider the given explanation applicable to these buildings as furnishing a primary motive for its employment.

A conclusive and most important consideration, already referred to briefly, is the one that the Amiens explanation does not consider the element of vertical curvature which appears at Amiens in the widening of the nave, but which appears in other important instances without any widening, as in the choir at Paris. In the Pisa cathedral the piers at the crossing have vertical curves which have been recently certified by the architect in charge to be constructive and which lean into the nave ($3\frac{1}{4}$ inches), without widening. The vertical curves in the Cathedral of Vicenza are found in piers which do not widen perceptibly.

The cathedral at Noyon (Fig. 7) is another instance of this class. The piers at the crossing in this cathedral curve vertically, but they lean into the nave 2 inches, by plumb measurement from the upper gallery. The piers of the nave and choir curve vertically into the nave about $1\frac{3}{4}$ inches, to the height of the first gallery, and then curve away from it about $3\frac{1}{2}$ inches up to the capitals.



FIG. 7. CATHEDRAL, NOYON. FROM THE ORGAN GALLERY.



FIG. 8. THE RIGHT SIDE OF THE CHOIR, CATHEDRAL OF LAON.

These curves are uniform in all the piers, but a photograph of smaller size than 25″ x 35″ does not show them to advantage. They are well shown in the Brooklyn exhibit (Nos. 119-122). In Fig. 7, note the plumb-lines, which are offered by the lamp-chains, which much assist in sighting for the curves. A surveyor's plumb-line is also suspended from the second bay of the gallery on the right.

An illustration from the cathedral at Laon will be another instance of the insufficiency of the Amiens explanation to cover the known facts. Vertical curves are found on both sides of the choir in the slender shafts which bound the exterior sides of the triple choir window, two sections of which are shown by Fig. 8. Each of these shafts diverges from the plumb-line about 5 inches in 39 ft. The central arch of the triple window is constructed with a widening of about 4 inches (width of the nave 36 ft.). On either side of the window the wall is solid. Above the window there is no appreciable weight, as its arches support only a light gallery. All these conditions are palpably foreign to the Amiens explanation. They react, however, as a proof of constructive purpose on the arrangements in the body of the church and choir, where delicate bends, with a widening of about 10 inches, are also found to exist (Nos. 22-28, of the Brooklyn exhibit).

Concluding Argument.

The final statement of the concluding argument against the Amiens explanation, as a primary and all-sufficient explanation of the widening construction, would therefore be something as follows: Only in infrequent cases, as hitherto mentioned, does the widening occur without curvature. The phases of the curvature are extremely varied, frequently with only such amount of divergence as is natural to any entasis, and sometimes without any upper divergence whatever. When all the known examples are considered together, including those in which vertical bends take the place of vertical curves (like St. Mark's and Sta Sophia), and including those in which the widening is found without either bend or curvature, the conclusion appears inevitable that two separate devices were easily and naturally united, either one of which might be, and either one of which occasionally was, employed separately. Both of these devices were undoubtedly aesthetic in their purpose, and of great advantage to the beauty of mediaeval building. The device which appears most singular to modern taste (although modern taste has long admired the very buildings which possess it, without having noted its importance and its relation to their beauty), was not detrimental to stability in the majority of cases

(in the opinion of the writer, as influenced by the information given at Amiens). In many cases it may have been a constructive, as well as an aesthetic, improvement and may have been employed also for that reason.

Accounts of Durand and Viollet-le-Duc.

The second volume of Viollet-le-Duc's Dictionary contains at p. 333, under the title of "Cathedral," the following passage relating to the Cathedral of Amiens:

"Cependant cette nef, dont la hauteur est de 42^m, 50 sous clef, et la largeur d'axe en axe des piles de 14^m, 60, ne s'est ni deformée ni déversée. La construction n'a subi aucune altération sensible."

Vol. II. of the Dictionary was published in 1867. Viollet-le-Duc was in charge of the repairs and restorations at Amiens from 1849 to 1874.

This passage would seem sufficient to establish the fact that the spread of 33 inches (2.80) in the nave at Amiens is not accidental. No vaulting could spread to that extent without collapsing, and we have the above assurance of Viollet-le-Duc that no perceptible distortion or warping has occurred in this nave.

Viollet-le-Duc's statement is supported by the recent work of M. Georges Durand,* who furnishes a complete history of the repairs of the Cathedral, based on its archives. As regards the vaulting of the nave, only one repair is quoted. It took place in 1805-6, when the vaulting at the crossing was observed to have settled *three inches* ("trois pouces"). This occasioned great consternation, and the repair of the affected masonry by means of iron cramps, was accomplished by the workman who had discovered the depression (p. 155, Vol. I.).

This record has significance in two directions. It not only indicates the extreme amount of depression which has occurred in the nave vaulting at Amiens, but it also shows what danger of collapse may be connected with a very slight accidental settlement.

It needs no argument to show that there is no relation between a settlement of 3 in. and a spread in the nave piers of 33 in. Three inches of settlement in a vaulting means three inches of spread between piers.

From the accounts of Durand and Viollet-le-Duc, we may argue that no special importance attaches to the alarm which was raised about 1805 by M. Grandclas, engineer of roads and bridges for the Department of the Oise, regarding the Cathedral walls.† Durand intimates that self-interest may have had a share in raising this

*Monographie de l'Église Notre-Dame, Cathédrale d'Amiens, Paris. A. Picard et Fils. 1901.

†Durand, Vol. I., pp. 160-162.

alarm, and records the fact that representations were filed with the Prefect, opposing those of Grandclas.

Both Durand and Viollet-le-Duc describe the chain of iron bars which was stretched in 1497 throughout the triforium, in order to stay the great piers at the crossing, which were thought to be bulging inward under the weight of the tower.*

As regards the Cathedral of Amiens, the question of the constructive existence of vertical curves in the nave cannot be separated from the constructive existence of the widening. If the widening be constructive, the curves by which the widening is obtained must also be constructive. The amount of this widening is so great and the records of repairs are so complete that the widening must be accepted as constructive. If the widening has been accented or augmented accidentally at any point, it has not been increased more than three inches.

Wm. H. Goodyear.

(To be continued.)

*Durand, Vol. I., pp. 61, 205. Viollet-le-Duc, Vol. II., p. 404. The latter supposes this tower, which was burned down in 1528, to have been of timber and stone, but Durand shows that it must have been wholly of timber, like the shorter one which replaced it.



THE "CREHORE" SUN-DIAL.

Manufactured by John Williams. Invented by Albert C. Crehore.



FIG. 1. THE NEW YORK STOCK EXCHANGE.

Broad Street, New York City. Geo. B. Post, Architect.

FAÇADE OF THE NEW YORK STOCK EXCHANGE.

THE Stock Exchange building in New York City faces on one of the broadest streets in the older part of the town. In spite of this, the high and wide façade of the new building cannot be made wholly satisfactory in a photograph. Figure 1 gives the view which is the best known aspect of the building. It is somewhat in this way that the front looks to the crowds who fill Broad Street for many hours of the business day; they having also the advantage of changing the point of view at will. It is best for us to refer continually to this view as representing truly that result which evidently architect and sculptor had in mind. By entering one of the office buildings opposite, and placing the camera as in making the illustration Figure 2, a front view is obtainable, indeed, but neither architect nor sculptor could have expected many persons to examine the building in that way.

To speak of this front in the first place according to the traditions of our schools, accepting the use of the Roman Corinthian order and therewith, as forming part of it, a triangular pediment, there is much praise to be given to certain parts of the design, and those the most striking and the most brilliant. In studying this we shall have to refer to Figure 2, in spite of the violent perspective taken from a point nearly opposite the median line of the front and much too near it, for the ordonnance of the front can best be understood by a comparison of these two pictures. A portico of six columns between two antae is raised high above the street upon a basement which has been made as solid as practicable. The colonnade, on the other hand, is entirely open, without masonry backing of any kind, without pilasters on the axes of columns, without a rear wall of any sort—in fact, with nothing to represent the enclosing wall of the building except sash and glass and such sunblinds as the in-dwellers have thought fit to put up. It is, in short, a screen of columns such as, if on the ground-level, would mask an entrance-way or partly separate two great halls. The entablature is made to look unusually heavy by the extremely massive carving of the frieze, and by large modillons left in the form of square, sharp-cornered blocks—instead of the more usual scrolls, sculptured on the under face of the double-curved surface. The pediment itself is of the usual and accepted proportions, although the right-lined modillons therein have an odd effect under the raking cornice, insisting strongly, as they do, upon the diagonal shape, with all their strongly marked principal lines aslope. The attic



FIG. 2. THE NEW YORK STOCK EXCHANGE.

Broad Street, New York City. Geo. B. Post, Architect.

wall, against which the pediment is seen in relief with but a slight projection of its roof beyond the vertical surface, has been treated with a curious system of recessing as for a panel, one inset within another, and this with the apparent purpose of seeking a strong differentiation from the flat wall beyond, on the left (see Figure 2) which might otherwise assert itself too much as part of the front—for part of the design it is not. Care has been taken to insist upon the slightly projecting square pilaster-like piers on either side of this attic, for these carry up the lines of the antae, or at least would be seen to do so if the building could more readily be examined from a point opposite to its centre line, as in Figure II. The whole of this attic, together with the piece of wall on the left, is crowned with a parapet, heavy, but not too heavy for the mass below, and with large pedestals which again insist upon the strongly marked verticality of the antae.

The reader will see why it is necessary to turn continually from Figure 1 to Figure 2. These classical façades of columnar architecture which for so many centuries have been laid out upon vertical and horizontal lines, whose relation one to another has been accepted as of extraordinary importance, are not to be judged by their resulting effects alone. To find the designer's intent, always the important thing in criticism, one has to go back of the finished work, very often. The question what the draughtsmen were doing over their drawing-boards, and how the thing seemed to them as they laid it out in geometrical elevation, cannot be lost sight of with propriety. The accepted relation of part with part, admitted conventions centuries old, cannot be judged finally in the building as taken cornerwise, seen in perspective. The student must be allowed to stand directly in front of it, and to go back from it in thought to the working drawings after which it was built.

So far we have accepted the front as a piece of admittedly neoclassic academical work, but there are one or two points on which, for better or for worse, the academic system has been abandoned; and first, to name an instance of such breaking of rules, the result of which is triumphantly good, let us consider the treatment of the capitals which crown the great antae. It was a bold thing to do, having put up those huge square piers terminating the portico at the north and at the south, and enclosing the more slender though still massive columns between them—it was a bold thing to give them capitals and bases exactly corresponding to those of the columns. That is not according to the rules! and yet see how fortunate the result has been, and therefore how sagacious we may think the designer of the thing, how well advised in laying out his work. He felt that his decorative front of 110 feet, more or less, did not allow of quite enough columns. The effect of a colonnade

depends largely upon its length relative to its height, and still more upon the frequent repetition of similar parts. In order to obtain such length, such continued succession, the designer has bethought him of increasing his six Corinthian capitals to much more than eight, at least in appearance, by putting in those very broad crowning members of the antae, for they are very broad. If the shafts of the columns are four feet eight in diameter at the top (this is a mere guess, or inference) the antae are eight feet wide on the front, and they look still larger than this dimension alone would make them because they also have their thickness and their reveal of six feet or so. When seen as in Figure 1, the capitals of these antae look fully twice as large horizontally as the capitals of the columns. It is to be insisted on, then, the altogether happy effect of this rather bold invasion of the usual proprieties. Even when seen in steep perspective, as in Figures 1, 4 and 5, there seems no serious breach of good taste, even in the prolonged hollow curve of the abacus as seen in these great square caps, nor any harm done in the apparent lengthening of the whole face of the capital as if the round detail had been "developed," as they say in descriptive geometry. Meanwhile there will hardly be two opinions about the happy effect produced by taking up the whole length of the portico for the repetition of the Corinthian capital and base, giving to a hexastyle the grandiose appearance of a much larger and longer colonnade.

It is the great richness of effect produced by this long row of elaborate pieces of leafage which carries off what would otherwise be the undue extravagance of the frieze. In itself, the frieze is a little violent. The label or panel, upon which are carved in relief the letters "New York Stock Exchange," occupies rather more than half the length of the frieze, and the contrast between it and the extremely deep and heavy sculptured foliage beyond on either side is great and sharp, in spite of the very fortunate thought of a rosette introduced at either end of the lettering to break the violence of the contrast. It is hard, however, to see in that deeply cut scroll-work a wholly fortunate piece of ornament. It is not as refined as that of the capitals. The very delicate sculpture of the cyma recta above, forming the crowning member of the cornice, contrasts in a way not wholly fortunate with the scroll-work to which allusion has been made. These inquiries into the refinements of the design will seem to some persons rather vain when applied to so careful a study of Roman work of the Imperial epoch; but there are fine things in the art of that period and many things not so fine. There is delicacy and there is a harsh excessive insistence. There is, in sculpture especially, an extreme refinement, a refinement as of the Italian fifteenth century, contrasting with an almost barbarous tendency to excess. And, because of these divergencies in

classical Roman practice, it is worth while to consider the degree of excellence reached in the ancient and the modern building of the style.

As for the feature of this building which perhaps has attracted the strongest animadversion, the relation of the colonnade above to the basement which supports it, there is certainly a lack of adequate solidity in that basement remaining in spite of the deliberate reduction to the smallest possible space of the window and door openings—the increase to the utmost of the piers between them. This is evident even in the front view (Figure 2); and we are reminded once more how these neoclassic designs are made in elevation, flat, with but little consideration of their look in perspective; but in Figure 1 it is more noticeable because the reveal of the arched windows is seen to be inadequate. The wall looks thin. But then no one has ever found an adequate solution of this problem: To support aright the great order when in an upper story. The two admirable buildings which front the Place de la Concorde on the north, those splendid structures by Gabriel, one of which is occupied by the French Navy Department, suffer in the same way. They have each a noble colonnade resting upon an arcade of very solid stone-work below, with the piers of course on the axes of the columns, but neither from the front nor as seen anglewise is the basement quite as massive as it ought to be. As to the basement of the magnificent colonnade which forms the east front of the Louvre, anything more trivial than those windows with the segmental arches, with crossets to break the architrave and the senseless keystone in the middle, even the nineteenth century never produced. One does not blame Louis XIV for having chosen the design. He, with his notions of what was grandiose, could not fail to admire this ordonnance of coupled columns, but he did not look so close as to ask how the basement wall was to be designed, and the result was that it never was designed at all. One recalls, in this connection, the fact that the author of this front was not an architect, nor a sculptor, nor a practical student of art in any form, but a learned physician, whose familiarity with Latin had brought him to translating Vitruvius.

This much, however, is evident enough—the requirement, the supporting of a heavy colonnade high up in a front, is one which it is almost impossible to meet. The Romans of the classical times did not raise great colonnades high above the site. Such marble columns as these were not asked to dance in the air as it were—they were allowed to stand firm on Mother Earth, and they lent strength to the building instead of needing to be nursed, to be handled carefully and held up with pains in a place unfit for them. No one can blame the modern architect for resorting to this de-

vice which has now become so common. No one stops to think, when he has a front to make splendid in a neo-classic style, but hoists his colonnade into any situation. And yet the superimposition of two smaller colonnades, as in front of St. Paul's Cathedral or the dome of the Invalides, or the coupling of the columns above the high basement, so that they become smaller and slighter, as in the Louvre colonnade or the Radcliffe Library, seems to be open to less objection and to be the natural way to treat the classical orders, always excepting the case of the Pantheon and that of the Panthéon, where they can stand at the level of the site or be raised above it merely by the height of the stylobate. This height may indeed be considerable. The podium upon which rests the order in the most important Roman temple remaining to us, the Maison Carrée at Nimes, may be nine feet high, but it is a perfectly solid wall with a surbase. The smaller temple at Vienne on the Rhone has a similar basement wall. The three well-known temples in the Forum (those of Castor, Vespasian and Concord, to use their common appellations), that of Fortuna Virilis, that of Mars Ultor, as far as we know it, and, out of Rome, the temples of Theveste and Sbeitla in North Africa, the gateway-colonnade of Baalbek and that at Damascus, the Gerasa and Palmyra colonnades—every image that the memory calls up of Roman practice with big columns is of them standing solid on the ground. These seem to be the conditions under which a classical colonnade of large size can do its work properly; and that of the Stock Exchange is assuredly large enough in the scale to need every preparation for its great apparent weight. In such a case the critic is expectd to be, as they say "constructive" in his criticism, and this phrase seems to mean that he should be ready with an alternative suggestion as to anything which he dislikes. Denying absolutely any such law as that, for criticism is not creation but discussion—not synthesis but analysis—I may still offer in such words as those used above, that the solution of the difficulty which no designer yet has mastered (avoidance of the difficulty, might be a better term) which consists in refusing to use the grand Roman colonnade in American street architecture. It has no place there, because it is absolutely out of scale. Figure 1 shows that, showing as it does the many-storied structures around, six or seven horizontal bands of small windows in the height of this single colonnade with its basement, ten at least in the whole height of the composition, including the pediment. Fig. 3 carries this comparison farther. In the background is seen the sub-Treasury building, once the custom house, which was begun in 1835, at a time when the dwelling houses and banking buildings near at hand were lower than itself though standing where now towers the three-hundred foot Continental Bank building and



FIG. 3. THE NEW YORK STOCK EXCHANGE.

Broad Street, New York City. Geo. B. Post, Architect.

the neighboring masses of almost equal hugeness. Out-reached and out-massed as it is to-day it is still much larger in scale than the skyscrapers near. Their unit of design is a story of offices twelve feet high; while that of the pseudo-Greek Doric portico has the other scale—that of a great hall thirty feet high set upon a lofty podium. The Roman Corinthian colonnade of the Stock Exchange is in good historical and artistic proportion to the Grecian Doric order of the sub-Treasury. It is so that the temple of Mars Ultor would outclass the Parthenon if they were brought together within a single forum, and yet the two buildings standing each for a spacious single hall and each of one story might keep each other company without offending the proprieties. If the colonnade of the Stock Exchange stood on a solid podium ten feet high, without openings at all we should have what many a market-place had to show, in the lands of the Mediterranean empire. But the twenty-story buildings near are of another world—of another standard; of another scope. Even the six-story front still left on Nassau street beside the towering Continental Building is out of scale with these colonnades.

And yet, as if to show us, writer and reader alike, that there is no hard and fast law in fine arts, we have to stop and recall the fact that here is a gigantic window made necessary, as it were,—that there is at least a wall over a hundred feet long and seventy feet high which may be opened up in one huge window, as it must needs be pierced for the passage of much daylight. So far, then, that wall in its exterior appearance is almost of necessity out of scale with the buildings near. The question remains as to the wisest treatment of such a wall, that this excess of bigness in one feature shall not overwhelm all else.

In this way we pass insensibly from the treatment of the design according to its own principles, to the examination of its propriety, of the propriety of those principles themselves. Let the reader look at Figure I and see whether this pediment which is not the end of a roof, has any fitness at all. The Grecian temples, all of them, had a pediment at either end; it was the triangular wall which stopped up the open end of the double-pitched ridge-roof. The Roman pediments which are built on the Greek plan, very numerous in all parts of the empire, were built in the same way, that is, like the one at Nimes and Vienne already named. Back of the raking cornice of the pediment continues the low pitched, tiled, roof-surface, of which, indeed, that raking cornice is merely the moulded frontispiece, corresponding exactly in its slope with the slope of the roof. Now, to take such a pediment, made very small, and put it over a window and then call it a *fronton* is one thing—that is not now under consideration. To erect a pediment on a great scale,

covering and crowning the whole of a great and ponderous colonnade like this, and then to have no roof behind it, but to stop it against a blank, smooth, vertical wall, is to invite most unfriendly comparison. And what makes the resort to that triangular pediment more surprising is that the ablest, at least the most powerful and efficient sculptor of the time and place, was to be called upon to fill that unlucky triangle with his composition. It is quite well known that he longed to fill also the two triangles above, or in other words, the broad horizontal band against which the pediment is relieved; but since that is so, how much nobler a thing it would have been, the whole broad band—seventeen or eighteen feet high if we take the stature of the central figure as our standard, and stretching from end to end of the colonnade. Can any one tell us why those columns and antæ should not have supported a horizontal band as well as a pediment? Roman example! The Romans offer no example of the pediment with no roof behind it. In the portico of the Pantheon, although recognized as a solecism in its present state, a solecism to be accounted for only by the building in of the rotunda of Hadrian behind and upon the earlier portico of Agrippa—even that has a roof behind it, although it be but the roof of a deep porch.

In this connection the front on New Street may well be compared with the elaborate façade which our figures show. It is impossible to show that front aright in a photograph, for New street is hardly a quarter as wide as Broad street where shown in Fig. 3. The building occupies the whole plot of ground; a huge room nearly square is carried through from street to street; the smaller and accessory rooms, corridors, elevators, stairs and the rest, are disposed of in irregular triangles, part of the plot on either side of the great hall. This accounts for the principal story, that whose floor is on a level with the very clumsy little stone balconies seen in Figure 2 and whose invisible roof, or ceiling, is on either side not far above the top of the Corinthian capitals, while in the middle it rises higher. There is one story below the floor of this great room, and this is taken up by lobbies of entrance, the access to elevators and the like; and on either side the entrance to the safe deposit vaults, and telegraph offices. The larger door to the south, on the left in Figure 2, is the entrance for strangers to the gallery, where alone they are admitted, which gallery has its floor on a level with the bases of the colonnade. Above the ceiling of the great hall are here two, there three, stories of much smaller rooms, used for the lunch-rooms and kitchens of a semi-private club.

Now, on New Street the front betrays all this interior lay-out, and the colonnade, which there corresponds, detail by detail except in decorative treatment, to the Broad Street colonnade, appears

like what it is, the decorative fitting of an enormous window. Now as to the propriety of using that colonnade, like the one in our picture except that it is of inferior splendor, the columns not fluted and the material less costly—the propriety of such a use for a huge portico of heavy columns may be questioned, of course; but at all events that front is realistic in a way. It shows what the building behind amounts to in the way of accommodation and construction. The wall above that colonnade is filled with good-sized windows in two stories. The wall at the side of it is filled with similar windows in four stories. In other words, the huge window comes in, here, as a perfectly explicable feature of a building which contains one enormous room and many much smaller ones. Now on the Broad Street front the treatment by reason and logic has been abandoned for the presentation there of a prodigious piece of decoration. And let us see whether our reasoning after the event will show us why the piece of decoration took the peculiar shape which it has taken. Why is the pediment put there? Probably because the architect of the Stock Exchange, Mr. George B. Post, has always known how to secure for his buildings the services of the first mural painters, the first sculptors on a grand scale—the best men of his time; and because there was here one more great chance. Again and again in his active and most successful career he has enlisted the services of those painters and sculptors whose work is the most powerful and effective, and whose fame he himself has done so much to perpetuate. So in this case he has felt that, apart from the dignity of the Roman frontispiece, there was also the opportunity to fill the pediment with Ward's brilliant and powerful sculpture.

But the reader will ask, why the triangular pediment for that purpose? Assuredly that is not a fortunate shape for a panel in which heroic sculpture is to be placed! If the Greeks and after them the Romans filled the pediment with sculpture, that was because the pediment had to be—because the end of the roof was of necessity an isosceles triangle, low and very broad; but certainly it never was and never could be an ideally good place for sculpture. Why could not those columns have carried a huge frieze as high at either end as in the middle, and thus have given to Ward an opportunity to produce a grandiose composition indeed—a band of sculpture eighteen feet high and at least one hundred and ten feet long? That would have been an achievement worth recording!

There are two reasons, which every architectural designer would at once find in his thoughts—two reasons for using the pediment. The first is that it might be thought relatively easy to convince the committee that a pediment needed sculpture. Examples of that combination of an architectural form with statuary could be produced by the score; not ancient ones only, but modern examples as

well, pediments from all the great capitals of Europe. It might have been thought far less probable that the still larger and rectangular space would have seemed to those holding the purse so absolutely in need of sculptured composition which should fill it. But another reason exists, as has been said above, and it is in every one's mind. "The classic is a soft snap;" which slang phrase was really used by a powerful architect of to-day, in conversation with the critic who printed it afterwards without its author's name. The classic is easy; that is to say, our books are full of it, our draughtsmen know it, the proportions of it are fixed, or are quite easy to determine, the draughtsman at five or seven dollars a day is just as competent to fix upon the conditions of it as the most subtile designer alive; in short all that facility which comes of long experience is there to aid the designer of Roman colonnades, and he thinks himself entitled to make the most of that experience, to take advantage of that opportunity, to design as his predecessors have designed. And he is right, so far. All great designing has come in that way. The difference is that in the days when architectural designing was as possible as landscape painting is to-day or when, as we say, architecture was a living art, the forms used by the designers were those which had become inevitable in the due course of daily planning and building; whereas with us this Roman *défroque* has no reason for being, and "The Man in the Street" accepts that pediment and all that accompanies it as something of which he cannot form any opinion at all, it being as he thinks, one of the freaks of the architect into whose habit of mind he (the Man in the Street) does not pretend for a moment that he can enter.

The conditions of these modern classical monuments, copied as they are in part from buildings of the sixteenth, seventeenth and eighteenth centuries, and partly from details measured and drawn carefully from the ruins of ancient Rome, are peculiar. The artistic material is stored in so many huge and costly volumes, Italian, French, German and English, presented under respected and honored names—Blondel, Chambers, Chipiez, Du Cerceau, Fauré, Geymüller, Letarouilly, Normand, Palladio, Papworth, Rouyer and Darcel, Vignola, not to name a host of modern reissues, restudies, and handy books of reference—that no redistributor of ancient forms need go far away for the principles upon which his work is to be done. Granted a little pecuniary success, and he has the books at his hand; accepted the humbler position as of a beginner in design, and he should have all the important books near at hand in a public library—in a great city he will have most of them. And this is what is meant when such profane remarks as the one quoted above

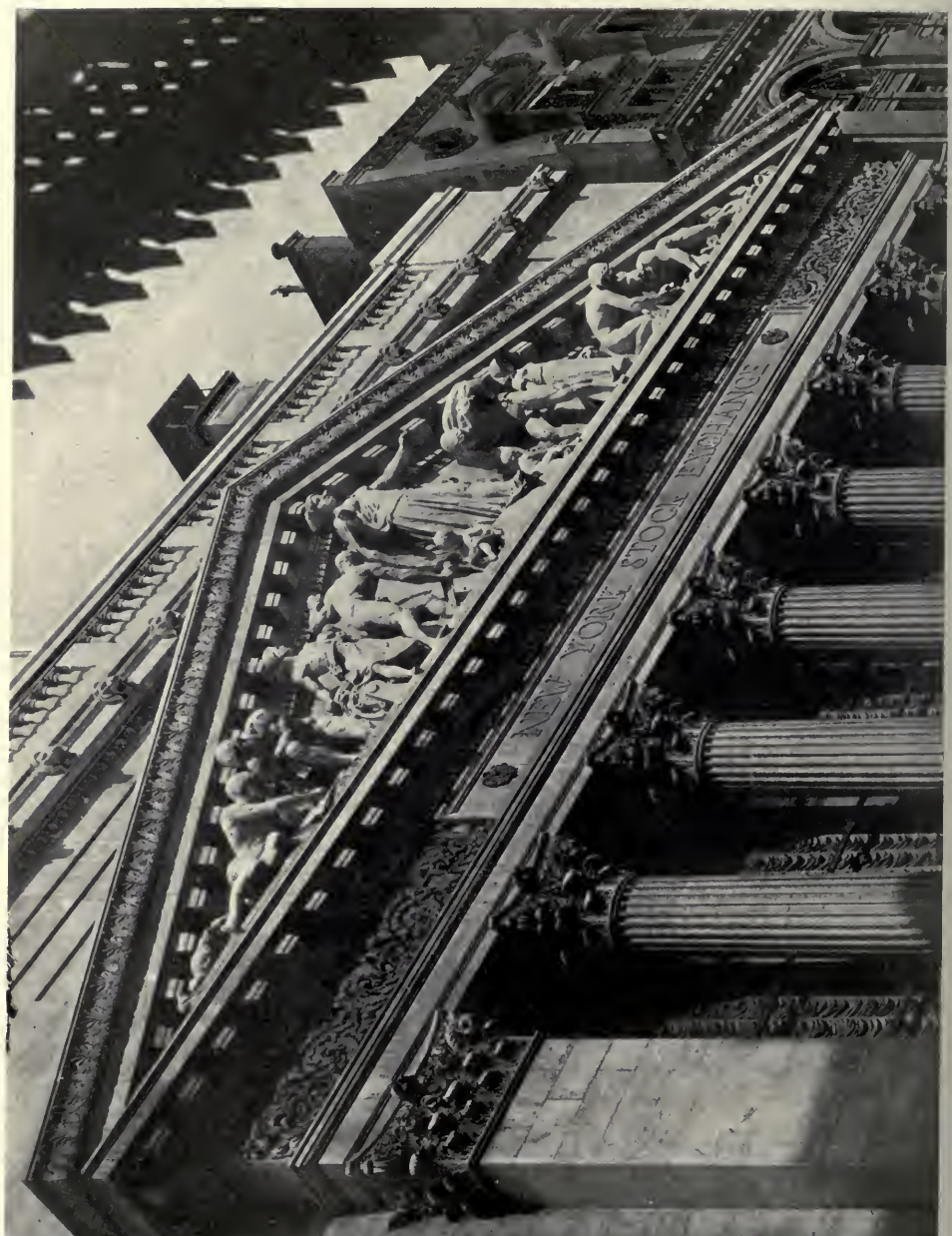


FIG. 4. THE SCULPTURE IN THE PEDIMENT OF THE NEW YORK STOCK EXCHANGE.
Geo. B. Post, Architect.

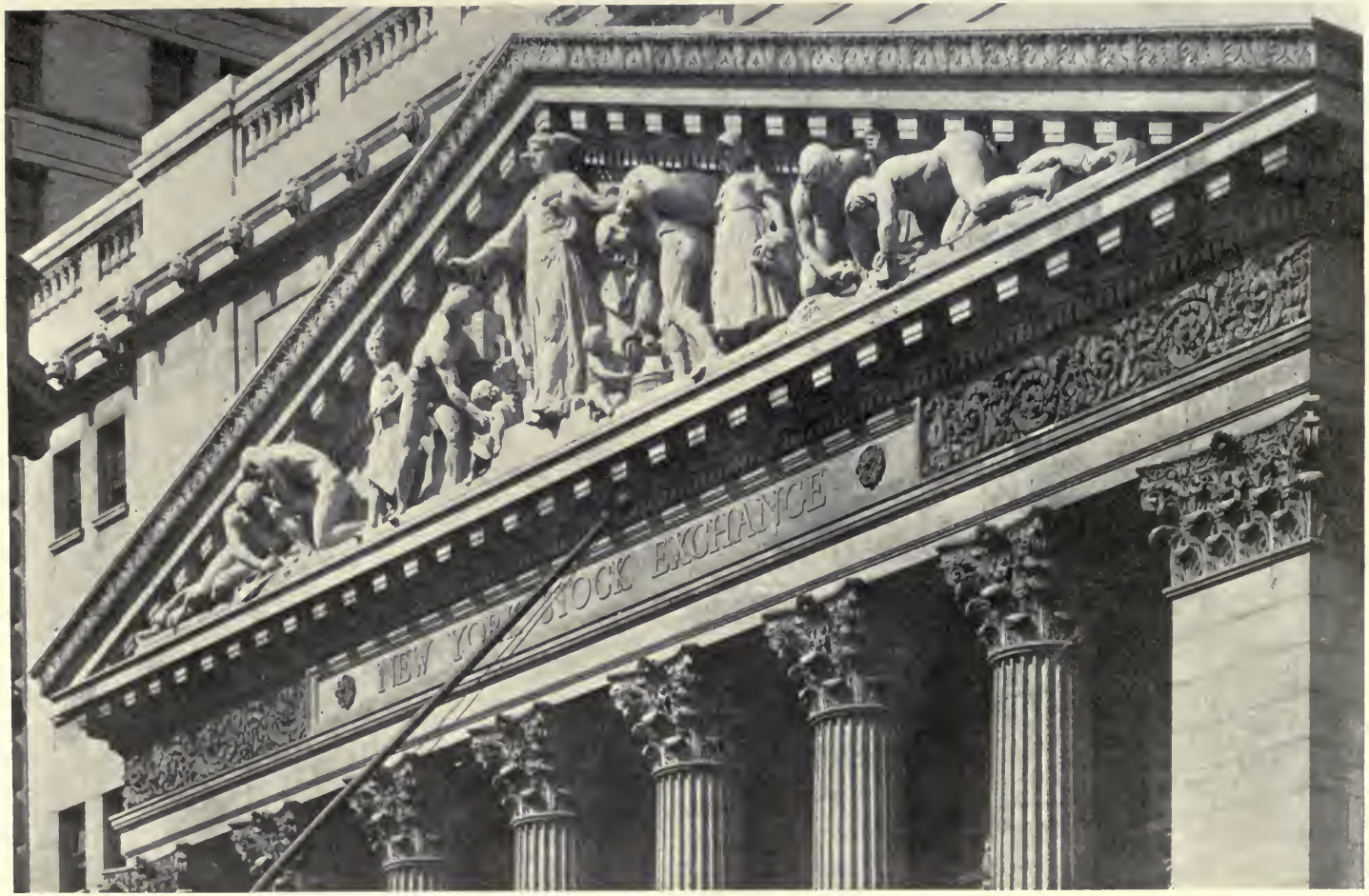


FIG. 5. THE SCULPTURE IN THE PEDIMENT OF THE NEW YORK STOCK EXCHANGE.

Geo. B. Post, Architect. J. Quincy Ward, Sculptor.



FIG. 6. THE SCULPTURE IN THE PEDIMENT OF THE NEW YORK STOCK EXCHANGE.
Geo. B. Post, Architect. J. Quincy Ward, Sculptor.



FIG. 7. THE SCULPTURE IN THE PEDIMENT OF THE NEW YORK STOCK EXCHANGE.

Geo. B. Post, Architect.

J. Quincy Ward, Sculptor.

are accepted as true by those who do not believe in this continual revival of that which has been so often revived. When the French visitors to the Chicago Exposition made fun of the designs of the great buildings there, saying, to their designers in some cases, and saying of them everywhere, that these were their school problems brought out of the old portfolios and called to life for the occasion, the answer was—Does the reader know what the answer was? It was gravely set up, as a sufficient explanation of that elaborate system of copying, that the important thing seemed to be to teach the American public what good architecture was. The architects would have preferred, so very much, to have made designs strictly in accordance with the time and place, with the construction in iron and the vastness of the scale required—yes! they would have preferred so decidedly to have done that—but then where would have been the valuable instruction of the great West in accepted classical architecture? And the reader is to remember that there is much confusion caused by the duplex meaning of the word classical! That word carries with it the notion of something admittedly superior or even supreme, even when it is used to denote an epoch or a style of building. And so it was that the designers of those fronts in Chicago persuaded themselves that the work which they did in the easiest and quickest way, as they had a perfect right to do it, under the conditions of hasty preparation and temporary endurance, was also in a mysterious way for the good of the public. Not to make a design at all, but to redistribute the same old columns and entablatures—that was assumed to be the best thing that the able architect could do for the artistical education of his fellow-countrymen.

With this we pass to the sculpture of the pediment and note once more how much the community owes to the high-minded resolve which has brought about this splendid adornment of the latest costly front. Note, too, the manly way in which the sculptor has improved the opportunity given him by the architect, how gallantly he has faced the very difficult question of filling that sharp-pointed triangle with refined and shapely sculpture. We are not likely to approve, on second thoughts, the suggestion of breaking waves in the carving at the two extremes of the pediment. Whether that means The Breadth of the Continent Bounded by Two Oceans, or not, is indifferent, for it cannot be called a fortunate motive in sculpture. And again when the unsigned newspaper criticisms ask why the difference in scale among the figures, why the perfectly formed young man on the left and the fully developed young woman on the right are only waist high, or little more than that, to the colossi near them—it will not be possible to find a wholly satisfactory answer. Admitting those doubts and questions and

not asserting for a moment that the highest reach of grace and charm is to be found here, we have still to rejoice over one of the most manly, strenuous and really formidable pieces of sculpture of modern times. Who but Ward would have dared to undertake that which to this present writer seems the boldest thing of all, the modelling of those tremendous statues on either side so that they fill with perfect harmony the tapering slope at either end of the pediment? On the left (see Figures 4 and 5) a pair of them are laying out a piece of ground or locating a building; on the right the other couple are prospecting for a mine and comparing the mineral fragments which they hold. Figure II shows all this in flat elevation, but the reader is requested not to use this picture otherwise than as a map—a diagram—for convenience of reference. The reader is reminded that the sculpture is planned with a special view to its position on a street, and therefore to be seen only from below and, as a general thing, at a steep angle from the right or from the left side. For the effect of the statuary, therefore, he should look (if the building itself is not within easy reach) at Figures 4 and 5, and not at Figure 2 at all. These figures show how the two surveyors are intended to be seen, and also how the two miners were in the sculptor's mind; and Figures 6 and 7 explain more fully the double or triple group in the middle of the pediment, and this also nearly as it looks to a careful student who walks through Broad street seeking for a point of view.

In Figure 6, then, we have, as seen from across Broad street and high up on the left first the slender young man already mentioned, who seems to be grouped with a dynamo as an impersonation of electrical power. The mighty giant next to him deals with cog-wheels and cold chisels, and seems to be concerned with an immense plate of metal which is to be rolled flat and riveted. On the right the small female figure holds a distaff and has her left hand on the head of a ram. And on her right is the Farmer, bending under the weight of a great sack of grain which he is beginning to pour out with careful adjustment into a measuring basket at his feet. The central figure is Integrity—but this central figure is not the most important part of the composition, which, it seems, resolves itself into the two magnificent groups at the two ends of the pediment and the two last described above and which we call Industry and Agriculture.

As regards the details of the sculpture, the artists (for Paul Wayland Bartlett was associated with Ward throughout the preparation of the model) have chosen the extreme of muscular development, working on the lines and in the spirit of the Louvre statue which used to be called the Borghese Gladiator. Or one

might compare the treatment with that of the famous Pergamon frieze, the combat of the giants against the gods; not that the modelling is alike in the modern and in the ancient work, but that a similar desire to insist upon the visible facts of muscular development appears in either case. The difference between such treatment of the body and limbs and that which we find in, for instance, the Apoxyomenos of the Vatican, is evident enough, and we need not be concerned with deciding absolutely in favor of either treatment. The three pieces of antique sculpture named above are taken of the same epoch, that we might note the reserved treatment and the realistic treatment of the vigorous body as seen by different artists of the later and more studious times of art, the Hellenistic epoch. We have no right to ask the modern sculptor to deal with the type of the age of Phidias. The seated Theseus or the reclining Ilissos of the Parthénon may be to art students occupied with comparative thought, finer things in sculpture than any product of later times; and yet we cannot ask the twentieth century sculptor to deal with those early works as his chosen type. The Doryphoros in the Naples Museum, the Diadumenos in the British Museum, the Hermes of Olympia—lovely as are those works of a time earlier than the conquests of Philip of Macedon or than the first expansion of the Roman power beyond the limits of Latium—indeed, with the Parthenon sculptures, our most perfect types of artistic treatment of the nude male body, represent an art of convention in the most strict sense of that term; and we have no right to expect that any modern sculptor should study himself into those conventions, and adopt the habit of mind which would enable him to design in the same way.

At the same time it must always be a grave question how far stateliness and monumental grandeur may be injured by so much detailed realism, and how far the study of the living model should be allowed to control the handiwork of the artist when there is question of stately design. Strong and real as are the sculptures of this pediment, the question as to the real beauty or the real dignity of the result must arise in the mind of every careful student of the composition. Let the reader go, five or six times on Sunday mornings or long summer afternoons, to study this piece of associated sculpture, and he will find in his heart much sympathy with the artists who were driven by the conditions of the work to the few, very large figures; to the great projection beyond the geison of two at least of the kneeling or seated statues; and to the rendering of such emphasized muscular development as is visible here. And the result is exceptionally strong and real: even if the ideal architectural treatment of sculpture be postponed until a day of more general use of such stately adornment.

Russell Sturgis.

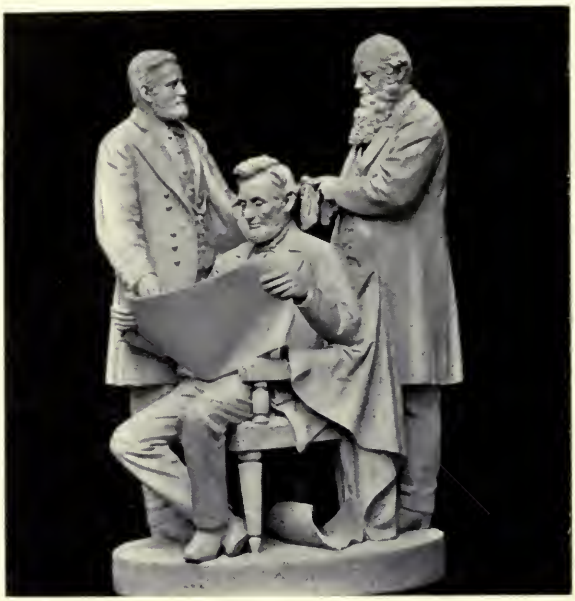
JOHN ROGERS: SCULPTOR.

THE passing of John Rogers marks the end of an era in American sculpture. During a period barren in all evidences of public interest in the sculptor's art John Rogers aroused an amount of popular enthusiasm, which has not been equalled by a single one out of the hundreds of more talented and virile American artists who have succeeded him.

This enthusiasm may not have been based upon any sound æsthetic principles; but it needs no apology. His homely works given to the public at a time when an appeal to national sentiment found prompt response, went straight to the heart of the American people. They did not require the explanation of guide books or critics to be understood. They did not hark back to the classics. Their subjects were to be found in the daily life of the average man, and notwithstanding their many shortcomings in *technique*, artistic conception, and methods of treatment, they stood out boldly as the first popular appeal that sculpture had made to the American people.



Compared with other nationalities we must reluctantly admit that even to-day our people take scant interest in the fine arts, and in Rogers' generation art was something unknown to the average American and even scorned by him. This scorn was in part the result of ignorance due to an unsuccessful effort to appreciate the work of the classicists of the period, who presented for the admiration of the common people the immortal Washington dressed as a Roman Senator, and their great Chief Justice arrayed in a toga.



THE COUNCIL OF WAR.
John Rogers, Sculptor.

These sincere men who had given a classic tendency to art for a half century had preached a gospel which was meaningless to the greater part of the American people, to whom Greece and Rome were simply names. They appealed only to the classically educated. Their art was learned. It had no message for a democracy in an undeveloped country where working with the hands was the rule rather than the exception.

The study of psychology played no part in the programme of the American classicists who wondered at the lack of appreciation in a heterogeneous population whose keen intellects would have immediately grasped an idea within their ken. If France admired, they asked, why should America not follow. A large part of the American people had enthusiastically received Citizen Genêt and had paid abject homage to the politics of Republican France under the leadership of Jefferson. Citizen Genêt was the personification of republicanism, and as such he was welcome. But though Jefferson was a republican in politics he was an aristocrat in art. Monticello marked the parting of the ways. The people did not follow. They wanted something they could understand.

The classic revival had been carefully nursed and fostered for many years by a few enthusiasts whose cravings for archæology blinded them to the beauties of their own time. Greece was free, the Elgin marbles were carefully housed in the British Museum. There was no Byron to sing an ancient civilization to popularity. The structure had outlived its usefulness. It was falling of its own weight.

The leaders in the protest against these all-pervading classical tendencies in England and America were all more or less pedantic, and the dogma that Eastlake wrote and Ruskin preached is now obsolete and forgotten. But its effect remains. They laid a broad

foundation for the more catholic art of to-day, and their very dogmatism laid it the more firmly. In this small group of men Rogers was a leader; not through what he said, but by what he did. The literary protestants were still aristocratic. Their tirades were read widely,—but by the educated few. The work that Rogers did was its own protest. It was democratic. It reached the many. It was seen by thousands where the words of the writers were read by hundreds. The "Rogers Groups" were reproduced in such commercial form that they were within the reach of the average man who saw in these little putty colored models a faithful picture of his own life and his own emotions.

He had a son or brother in the armies of the Union, and the artist fittingly appealed to him in a manner that was keenly personal in such groups as "The Council of War," "News from the Front," and "The Returned Volunteer."

Hence in every darkened parlor in the loyal states a "Rogers Group" kept silent company with the badly painted family portraits and the haircloth furniture, and was a perpetual reminder of the family's interest in the struggle for national existence. This holy-of-holies was carefully shielded even from the light of day and it was indeed a privilege to enter the sacred precincts of this darkened room where in the place of honor stood the "group," not always beautiful it is true, but representing something vigorous and alive, something which even the children understood as they cautiously opened the door and peered in through the gloom.

John Rogers first saw the light in Salem, Massachusetts, in 1829, where his father was a merchant, and early in life he was sent to Boston to learn the dry goods trade. A few years later, having found commercial pursuits unsuited to his temperament, he drifted into the machine shops, in which he worked both in the east



THE SLAVE AUCTION.
John Rogers, Sculptor.

and west until 1857, when he determined to cultivate his talent for modeling which he had previously practiced as an amateur. As a preparation for his new work he spent about a year in Europe, from which he returned more determined than ever to adopt the career of a sculptor, but quite uninfluenced by the classic tendencies which had surrounded him in the galleries of the old world.

From the first he met with more than moderate success with his "Checker Players" and other *genre* subjects. In the early days of the civil war he produced "The Slave Auction," which fortunately attracted the attention of Henry Ward Beecher, who immediately recognized the value to the abolition cause of this popular work.



THE RETURNED VOLUNTEER.
John Rogers, Sculptor.

This patronage gave him an earnest and enthusiastic *clientele*, and a larger audience eager to applaud. His other groups, mostly of war subjects, followed during the succeeding years, and on these works his fame rests.

His excursions into the more serious realm of sculpture were few, the equestrian statue of General Reynolds in Philadelphia being his best known work. They added nothing to his reputation. Other men were coming to the front whose portrait statues were equally mediocre. His story had been told in his "groups."

During his later years John Rogers was but a name to the American people. He had no permanent place in the newer American art. When he died on the twenty-seventh of last July his death

hardly caused a ripple, but he served his day and generation well. It is unfortunately the custom of the American sculptor of to-day to forget John Rogers when he names the list of men who have given life to plastic art in the United States, and who have made possible the sculptural decorations of St. Louis and Chicago. But notwithstanding this lack of appreciation on the part of his successors, Rogers' name is firmly fixed in his nation's history. He was the first American to show his countrymen that sculpture was a living art, that it could properly express the things that are, as well as the things that were; that a subject was not too humble to be treated by the artist, because it entered into the daily life of his



COMING TO THE PARSON.
John Rogers, Sculptor.

own people. Rogers plainly blazed the way for stronger, better trained but less original men, and with it all he had no mean share in feeding the fires of patriotism through the four long years of civil war.

His recognition was instantaneous. Rogers was the people's sculptor. He told the story of his time in clay just as sincerely as the men of Barbizon told theirs in color. His public was crude and his efforts are not to be compared with theirs, but within his limitations he served his purpose with as much sincerity and with equal effect. Our national art and our national sentiment both owe a debt to John Rogers.

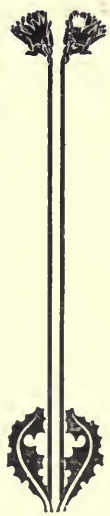
Charles Henry Israels.



"TWILIGHT."

Cast in Bronze by John Williams. Olin Warner, Sculptor.

EXAMPLES OF RECENT BRONZE WORK





"THE APPROACH OF THE WHITE MAN TO THE PACIFIC COAST."
Erected in Portland, Oregon.
Cast in Bronze by Bureau Bros. H. A. MacNeil, Sculptor.



BRONZE ELECTROLIERS—18 FEET HIGH.

Oliver Building, Pittsburgh, Pa.

Cast by Union Equipment and Bronze Co. D. H. Burnham & Co., Architects.



"THE COLLEGE ATHLETE."

Cast in Bronze by John Williams. R. Tait McKenzie, Sculptor



BRONZE ELECTRIC FIXTURE.

Cast by the Horn & Brannen Manufacturing Co.



THE "NEW LIFE."

The Bonney Memorial in Lowell Cemetery.

Sculptor, F. Edwin Elwell; Cast by Bureau Bros. Henry Bacon, Architect.



"INDIAN IN CANOE."

Cast in Bronze by John Williams. John Francis Brines, Sculptor.



WROUGHT-IRON ELECTRO-BRONZE PLATED BRACKETS, U. S. MINT, PHILADELPHIA.

Cast by John L. Gaumer Co.

THE GREATEST OF BUILDING PROBLEMS— ITS SOLUTION.

[*The following is the first of a series of Technical-Industrial Reports upon a certain System of Fireproofing, made to the Manufacturers by the well-known expert on Building Construction, Mr. William J. Fryer.*]

The Problem

The proper construction for a fireproof building has received the closest attention of some of the brightest minds in this country for a number of years past. Whether such a building is designed to have solid brick walls, or a steel skeleton frame supporting thereon the walls and floors, or a cage construction where the exterior walls are independent of the interior columns and girders which support the floors, there now remains practically nothing that is not known and recognized as necessary to be done in providing safely for the weight-carrying portions of the structure. Adequate encasement of columns, girders and beams from the weather and from the effects of fire and water, or the two latter combined; the avoidance of voids under floors and open communications between floors whether by elevators, pipe wells, floor lights, skylights, or furrings; fireproof partitions resting on wood floors instead of starting directly on the steel floor-beams or on the fireproof filling between the beams; insufficient protection for window and door openings against exposure hazards; the use of flammable trim and finish throughout the building; slate, marble or other stone treads on stairs when used without iron plate supports directly underneath—these and numerous other defects in construction have been revealed from time to time under the supreme test of fires in important buildings, and the repetition of bad features is being guarded against by compulsory measures incorporated in the building regulations of various cities.

The Wide Choice of Materials

For a fireproof building an architect has a wide range of materials—brick, terra-cotta and stone—to choose from in encasing the steel skeleton frame; and for the filling between the steel floor beams he has brick, terra-cotta and cement concrete. Each and all of these materials are good when properly applied, and the selection of one or the other, or of all, may be a mere matter of circumstance in any particular case. For partitions, elevator shafts and like enclosures, a decision as to the materials to be used is not extremely difficult. But when the question of the trim of the building, the doors, window frames and sash, the casings, and the walking surfaces of the floors, he is in a maze of doubt

and uncertainty as to what material should be used, having due regard to fireproof qualities, durability and appearance.

The Elimination of Wood

The lessons of the past have shown conclusively that wood must be eliminated from the list of materials to be used in the construction of a building that is to be considered fireproof. Partitions cannot be made fireproof with wood sash and doors in same; nor if bucks or frames of wood are used in their construction. Window frames and sashes of wood in the outer walls can no longer be offered as a temptation to fire from adjoining buildings. Wood floor surfaces are extremely dangerous, for in practice it is seldom that the concrete underneath extends up to the underside of the floor boards. Certain building laws authorize the use of wood covered with metal, and wood treated by fireproof processes. Wood covered tightly with metal soon becomes dozed, especially when exposed to the weather. Even doors and outside shutters, or what are called Underwriters' doors and shutters, constructed of two thicknesses of matched pine boards and covered with tin on both sides and edges, with folded lap joints, are subject to dry-rot and the wood is frequently found to be mere punk within a tin casing, particularly when exposed to the weather or where there is dampness within the building. Wood treated by so-called fireproof processes is for the most part an alluring sham. In a factory in the City of New York a lot of wood that had been treated "fireproof" elsewhere by one of the best, if not the very best, of the fireproof processes; and, at any rate, by a process acceptable to the Bureau of Buildings, was being worked up into shapes. A well-known builder standing by, asked of the manager of the factory: "What do you do with these shavings and short pieces?" The manager replied: "We burn them under our boiler!"

What To Use

What, then, is an architect to use for doors and windows and trim, and for floor surfaces and other purposes where wood has been so generally used? Is there a substitute that is scientific, practical, tested, adaptable, economical and financially guaranteed to be all that it is claimed to be? An affirmative answer is given to these questions, and the reader's attention and postal enquiry is directed to

"HECLA FIREPROOFING"—PATENTED.
The System of Real Fireproofing.

The Hecla Iron Works, Brooklyn, N. Y.

The
Architectural Record.

VOL XVI. DECEMBER, 1904. No. 6.

CHANTILLY CASTLE.

IN every country there are a certain number of residences—palaces or castles—which are known to all, whose names are bound up with the nation's story, and which are representative, if I may use the term, of the different periods of civilization through which they have come down to us. The picturesque outlines of their towers, balustrades and terraces illustrate and embellish the pages of history. They tell us of the private life of those who for a short while have occupied the world's stage, showing us what were those persons' ideas of comfort and luxury, their artistic tastes, how they built their habitations and laid out their parks and gardens. Thus these edifices belong to the history of architecture, using this word not in its strict meaning of construction, but in that of mother and protectress of all the plastic arts. They evoke a vanished past, a past, however, of which we are the outcome. One cannot look without emotion upon such ancient and historical edifices as those at Blois, Fontainebleau, Versailles and Chantilly, not to mention others.

This article proposes to deal with Chantilly Castle, in order to show the parts it has successively played in French history during the last four hundred years. Chantilly was never a royal residence. In the sixteenth century it belonged to one of the leading families of France, the Montmorencys, and from the seventeenth to a younger branch of the royal family, viz., the Condé branch. Its history is as dramatic as the history of France itself, being, in fact, an epitome of the latter. Chantilly has gone through a continual succession of ups and downs. At the advent of each new period the old forms have been destroyed to give place to new ones. The Renaissance would not tolerate the mediæval keep, although it retained the picturesque aspect thereof—in fact, the seventeenth century was even more destructive than the Revolution. We shall see how a princely family gathered together in this castle,

Copyright, 1904, by "Architectural Record Company." All rights reserved.
Entered May 22, 1902, as second-class matter, Post Office at New York, N. Y., Act of Congress, of March 3d, 1879.

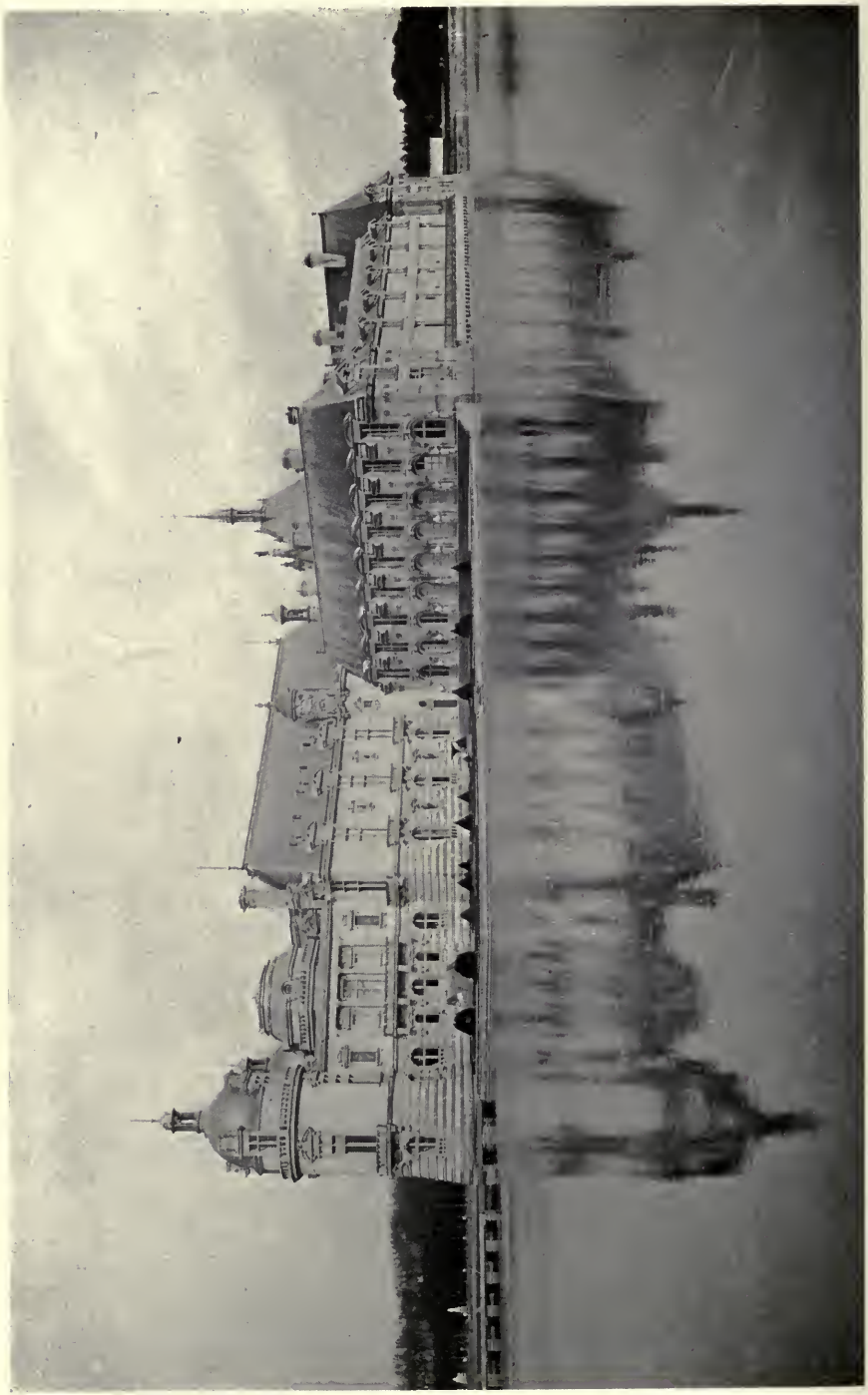


FIG. 1. GENERAL VIEW OF CHANTILLY CASTLE.

in the course of two centuries, a rich store of art treasures, and how the Revolution came and in two short years dispersed the collections, sold the furniture and razed the Castle to the ground. Finally, after many vicissitudes, Chantilly was rebuilt by the Duc d'Aumale, the descendant of the Condés, and again filled with masterpieces of art. In his hands it became as splendid as it had ever been, and this time to remain so. The duke, desiring that these treasures should belong to the French nation, bequeathed Chantilly Castle to the Institute of France, to be freely accessible for all time to artists, men of science and the people at large.

Chantilly, therefore, is now a unique place. Architecturally, it has preserved an exquisite specimen of French Renaissance work —the Châtelet—whilst inside its walls it holds art collections of a truly rare interest. We shall endeavor here to revive a few of the most interesting periods in the Castle's history.

* * * * * *

Chantilly is of Roman origin. At the edge of a large forest, thirty miles north of Paris, the Romans established a fortified post on an isolated rock standing in the middle of a marshy valley. This post was commanded by one Cantillius, whence the present name of the place. Subsequently the swamps were drained, and their waters, mingled with those of a small river, the Nonette, surround the present castle, which, like its predecessor, stands upon the rocky site chosen by the Romans. From the very gates of the castle stretch immense forests, which resound twice every week to the notes of the huntsman's horn and the bayings of hounds in chase of stag or boar.

In the fourteenth century the chateau belonged to the Boutellier family, of Senlis. It was destroyed by fire during the peasants' revolt known as the Jacquerie. At the end of that century a Chancellor of King Charles V., named Pierre d'Orgemont, bought Chantilly and rebuilt the Castle. It was the d'Orgemont family who were the real founders of the present edifice. The groundwork of the Castle has remained the same since that time. Through all the subsequent reconstructions, the foundations laid in the fourteenth century have been retained.

At that time it was an important fortress, with marshes all round, and the entrance protected by a gateway surmounted by the heads of boars and wolves. The principal keep was defended by three moats, three drawbridges and three walls. The Hundred Years' War was at its height, and English, French and Burgundians were fighting in the provinces around Paris. The Sire d'Orgemont, in

his stronghold of Chantilly, fought successfully against the garrisons of Senlis and Creil. At the close of the fifteenth century the d'Orgemont family had, as heir, only a daughter. She married Jean, second Baron de Montmorency, and by this union Chantilly entered into the possession of this house, and then into that of the Condés, with whom it was destined to remain.

The grandson of the said Jean de Montmorency and Marguerite d'Orgemont was the celebrated High Constable, Anne de Montmorency, a great soldier, and companion of François Premier and Henri II., but also, as was the fashion of the time, a classical scholar and a man of refined, artistic tastes. In his hands the old chateau lost much of its mediæval character.

The French, with Charles VIII. and François Premier at their head, had gone down into Italy and seen there the monuments erected in the course of the fifteenth century by architects who had studied those antique models with which that country was so richly strewn. Brunelleschi, Leon Battista, Alberti, Bramante, had constructed palaces and churches in a new style. The French became infatuated therewith, and on returning to their own country wanted to put into practice the rules laid down by the Italian architects. Happily, however, the revolution was not a complete one. In the country where that admirable creation, the Gothic style, originated, it was not easy to do away with the old habits at a single stroke. A compromise took place, the French adopting the antique ornamentation—columns, pilasters—but retaining the picturesque features of their own styles—the lofty roofs, the large chimneys, the high dormers, and also the general arrangement of the buildings. They did not sacrifice everything to uniformity of front, as did the Italians, but preserved a rational division of the various sections, visible from without. The staircases remained visible. Besides, they kept, for chapels, the Gothic vault. Thus it is that we have those charming examples of the Renaissance—Chambord, Blois, Chenonceaux, Saint-Germain, Fontainebleau, Chantilly—which, while conceding something to the new fashion, retain a thoroughly French stamp.

The times, too, had changed. Order had been restored to the kingdom; the powerful independent nobles had been checkmated by Louis XI.; the provinces were no longer being devastated by civil wars and the religious conflict had not yet broken out. On all sides the nobles were eager to let the air and the sunshine enter the gloomy strongholds that had come down to them from feudal times. They had large openings pierced—rows of windows reaching from the ground floor to the top, and forming a characteristic of the architecture of the period. Beautiful gardens after the Italian style were laid out around the castles.

The High Constable, Anne de Montmorency, transformed Chantilly in this manner in the first half of the sixteenth century, employing for that purpose a celebrated architect named Pierre Chambiges, son of a man who was himself a well-known architect.

It must not be supposed that in those days architects had the same social standing as they have now. In our time an architect is a gentleman—or at least one hopes so. At night he dons evening dress and dines out. He belongs to society. In the Middle Ages, however, and even during the Renaissance, the name architect was not used: he was called a mason. The difference of position is evi-

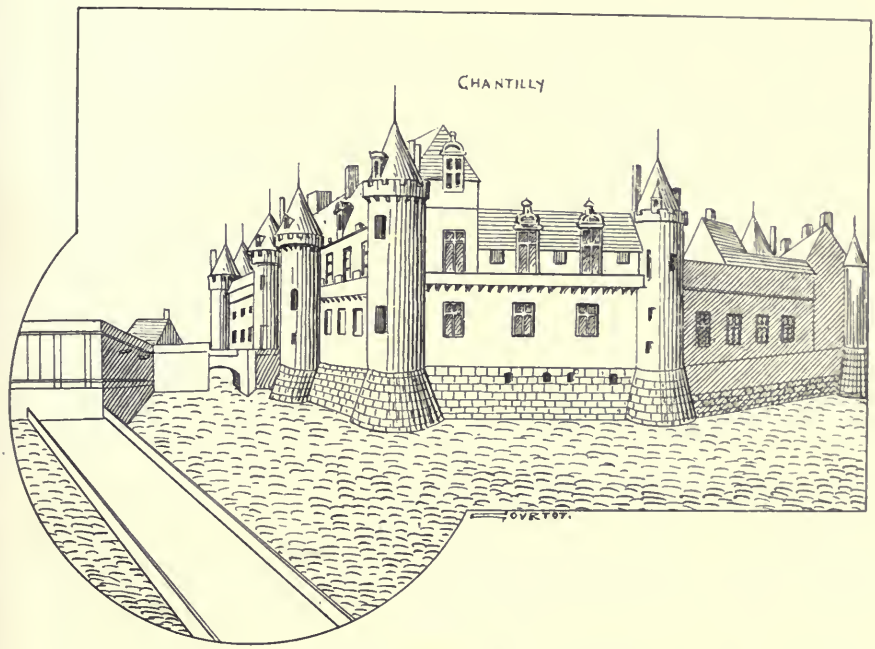


FIG. 2. CHANTILLY CASTLE AT THE TIME OF ANNE DE MONTMORENCY. From an Engraving by Du Cerceau.

dent. Pierre Chambiges, architect of the High Constable Anne de Montmorency, was one of the four master masons of the City of Paris. He worked for the king, François Premier, at Fontainebleau, Saint-Germain and La Muette. He was engaged at Chantilly for three years. Nothing now remains of his work, and for this we must blame, not the Revolution, but the seventeenth century, which could not endure the picturesque, so dear to the first Renaissance. Thus we see at Chantilly the different phases of the evolution of taste, and observe that, as I have often pointed out, the triumph of Italian ideas was, happily, very tardy in

France, and that the sixteenth century preserved its originality and its gracefulness.

Du Cerceau's work, "Les Plus Excellents bastiments de France," has an illustration, which we reproduce (Fig. 2), showing the state of Chantilly Castle as it stood in the time of the High Constable Anne, and before the Petit Château had been erected. It was no longer a mediæval keep, and yet Pierre Chambiges' work, with its many windows, was still a stronghold.

About the year 1560 High Constable Anne decided to build a small castle on an island situated alongside the rock on which stood



FIG. 3. WEST FRONT OF THE "PETIT CHATEAU."

Chantilly Castle. Jean Bullant, Architect.

the principal building. His architect for this work was Jean Bullant, who had already worked for him on the Chateau d'Ecouen. The small castle was connected with the big one by a drawbridge and a passage-way at each story. This small castle is all that now remains of the ancient Chantilly. It is one of the finest examples of the second French Renaissance—the Renaissance of Henri the Second's time—and shows a greater effort after symmetry and a taste for regularity of arrangement. One also notes there the appearance in French architecture of the Colossal Order, as is shown in Fig. 3 of this article.

The Colossal Order, which has had a not less colossal success in the world, was invented by an Italian named Palladio, who applied it to the Theatre of Vicenza. The antique orders, as is known, each commanded a story. The Greeks avoided as much as possible the superposing of stories; the Romans, on the contrary, employed it frequently, as we see in the Colosseum and other monuments: the Doric Order for the ground floor, then the Ionic, and then the Corinthian or Composite.

This arrangement was reproduced during the Renaissance. But something new was desired, something less sober, something more



FIG. 4. EAST FRONT OF THE "PETIT CHATEAU."
Chantilly Castle. Jean Bullant, Architect.

striking, and so they invented the plan of columns covering two stories at a bound and supporting the entablature. This is what is called the Colossal Order, where all the carefully studied proportions of the antique orders are changed. The Colossal Order has spread over the world. There are few public monuments in Europe or America that have not offered up in sacrifice to it, and hence it is interesting to know where it came from and what was the first building to which it was applied in France. By rare good fortune the small castle, or Châtelet, at Chantilly, escaped Man-

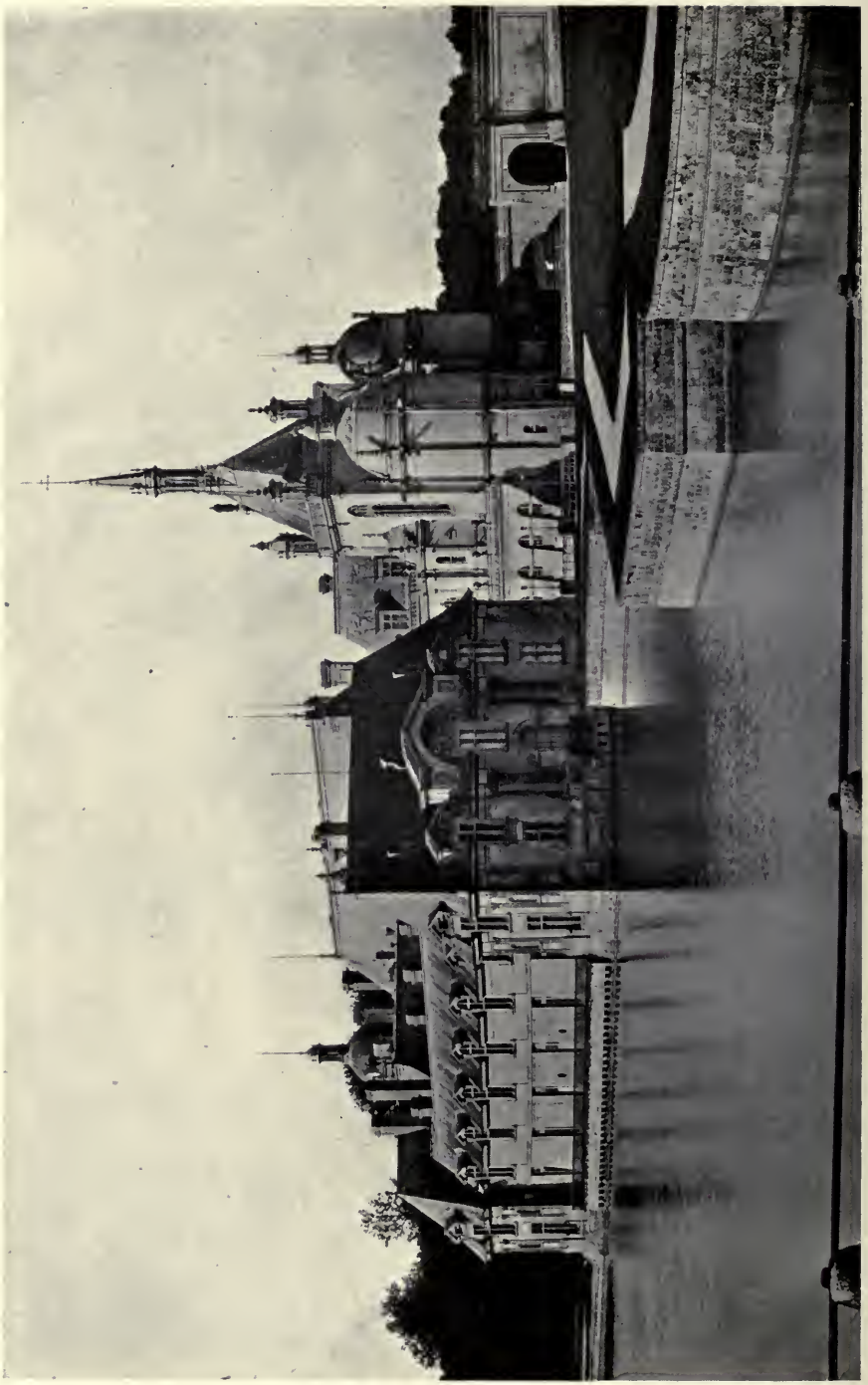


FIG. 5. THE "PETIT CHATEAU." Jean Bullant, Architect.
Chantilly Castle.

sart's restorations in the seventeenth century and the destructions of the Revolutionary period. We see it to-day exactly as Bullant built it three hundred and fifty years ago.

We give several views of the small castle, for it deserves this distinction. One figure (Fig. 3) shows the front looking on the garden called the Volière. The following is its arrangement: on the ground floor, semi-circular bays opening on to the terrace; above, high windows passing the cornice and rising dormerwise to the roof, with frontons in the form of the segment of a circle alternating with triangular ones; between the bays, pilasters rising to the entablature, regardless of the division into stories. The high roof is of handsome design, while its steep slope insures the rapid running off of the rain water. This again is in harmony with the mediæval tradition.

The south front of the Châtelet (Fig. 5) is more subdued, although Bullant keeps to the plan of windows which leap over the cornice. We are not familiar with any other examples of this. The two blocks flanking this front form an ornate outwork, with four elegant pilasters each. The sharp cut of the roof adds to the picturesqueness. As to the eastern front (Fig. 4), it is a handsome composition of the kind dear to the Renaissance. It looks now, as it did long years ago, towards the entrance of the big Castle. Bullant placed there a large projecting portico with a monumental pediment engaged in the roof and supported by pillars. Inside the tympanum two allegorical figures are holding a shield with the Montmorency arms surmounted by a helmet. Niches between the pillars are still awaiting statues to fill them. The capitals, dormer frames, brackets, cornice, pediment, all have the finest, richest decoration.

As the reader will see by the plan of Chantilly which we give (Fig. 6), the Châtelet consists of three blocks, which are now connected with the Grand Château by the grand vestibule and by the library. Formerly, the two buildings were separated by a moat filled with water.

Jean Bullant's work is a very original one, as has been remarked. It shows such imagination and such personal inspiration as remained in the architecture of the second half of the sixteenth century. I do not know of any castle or palace that resembles the Châtelet. Its conception is quite original: the Colossal Order, with windows reaching into the roof, produces a curious impression. At first sight one cannot understand what the division into stories is, although this, in every edifice in the world, is the point one recognizes before anything else, and certainly that is not an arrangement to be recommended. Nevertheless, Jean Bullant's work is a pleasing one, by its fine sense of proportion, by the ele-

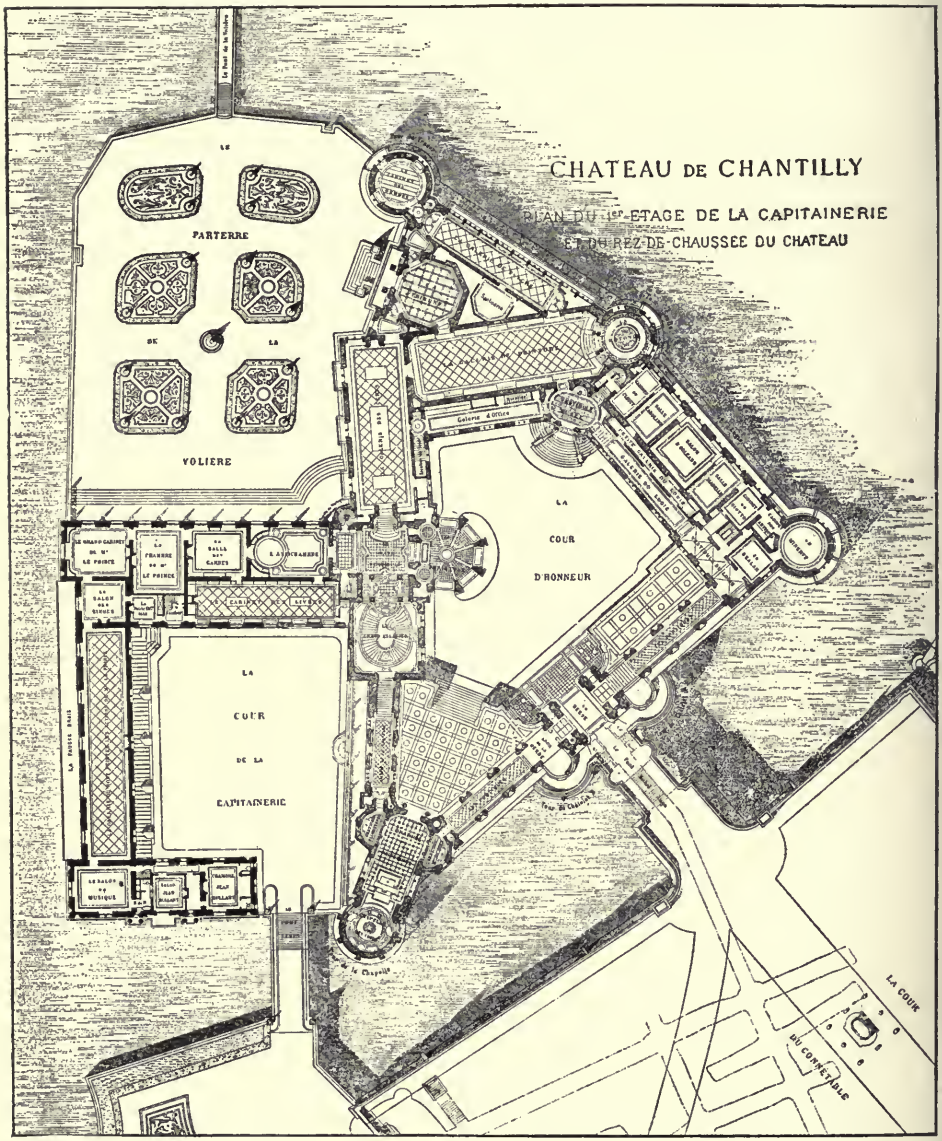


FIG. 6. PLAN OF THE FIRST FLOOR OF THE PRESENT CASTLE OF CHANTILLY.

gance of the sweep and profile of its cornice moulding, and by its decoration, at once rich and sober. It is the mingling of these qualities, rare at all periods and almost lost, we think, at the present time, that makes the small castle of Chantilly one of the best examples of French architecture.

Chantilly, in those days, was one of the finest residences in France. The High Constable, Anne de Montmorency, betook himself there to rest from the fatigues of warfare. He led the country life of a *grand seigneur*. He built a large farm house on the estate, bred stock on extensive pastures laid out in the French manner, and, in his idle hours, played tennis. He entertained freely, amongst his distinguished guests being François Premier and, later on, Henry II. Chantilly was then, as it is now, a great place for the chase: in the neighboring forests they hunted the boar and the stag.

During the religious wars of the League, Henri de Montmorency, Anne's son, took the side of King Henri IV., to whom he rendered valuable service. As a reward, he was appointed in his turn High Constable of France, and Henri, after coming to the throne, continued to be his friend. The king always called him "mon compère." He even wanted to have the High Constable's son marry Mademoiselle de Vendôme, the illegitimate daughter he had had by Gabrielle d'Estrées; but Montmorency was not willing. To have a bastard, even a royal one, enter his family, did not attract him at all; and so, without asking the king's consent, he hastened to arrange a marriage for his son with a certain Mademoiselle de Chemillé, who was eighteen years old, whereas his son was only thirteen. The marriage took place and, as was the custom in the case of such young couples, the wedded pair were parted immediately after the ceremony. Henri IV. was so angry that the High Constable dared not leave Chantilly. Several months passed. Then the king suddenly relented. The fact was that he had fallen in love with the High Constable's daughter, Charlotte Marguérite de Montmorency, who at that time was only fifteen years of age, but extremely beautiful. In order to have her always near him, the middle-aged monarch would not rest until he had married this handsome girl to his nephew, the Prince de Condé, who, however, was fonder of the chase than of ladies. This marriage took place, but the Prince de Condé proved to be a less complaisant husband than Henri IV. had counted upon. As soon as he perceived the king's feeling for his wife, he at once quitted the country, taking her with him, and did not return until after Henri's death.

As to the second Henri de Montmorency, son of the High Constable and himself a field marshal, he took part in the struggle against Richelieu, allied himself to Gaston of Orleans, was cap-

tured in battle and lost his head at Toulouse in 1632. He died childless. Chantilly thus fell to his widow, and then, at her decease, to Charlotte Marguérite de Montmorency, Princesse de Condé and mother of the great Condé. Here begins a new chapter in the history of Chantilly.

* * * * * * * *

The Grand Condé, whose name always evokes that of Chantilly,

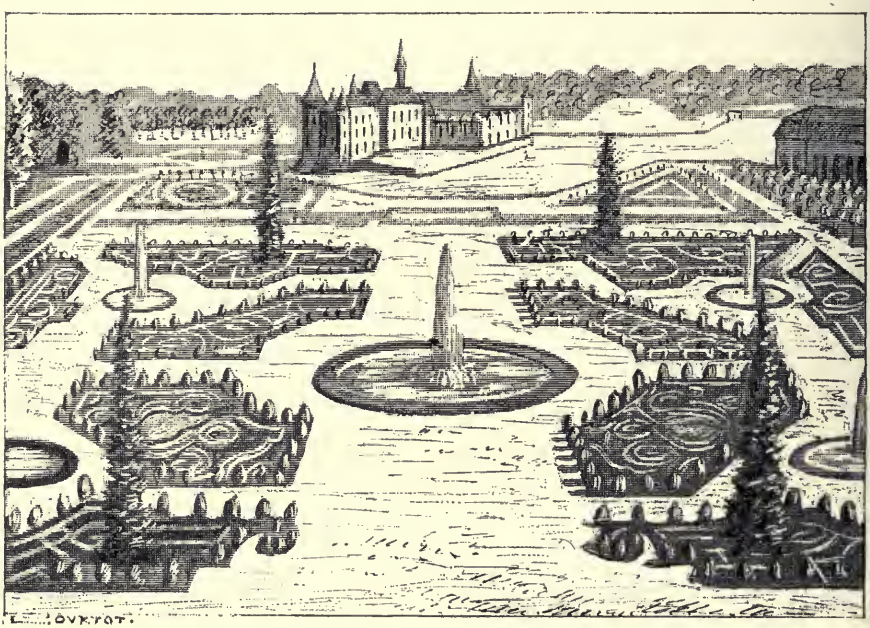


FIG. 7. CHANTILLY CASTLE UNDER THE GRAND CONDÉ.
Le Parterre de l'Orangerie. Architect Le Nôtre.

had an early and a brilliant start in life. It may be said of him, as of Corneille's *Cid*:

> Ses pareils à deux fois ne se font point connaître,
> Et pour leurs coups d'essai veulent des coups de maître.

He was but twenty-two years old in 1643, when he defeated the Spaniards at the famous battle of Rocroi. After that, he won victory after victory. But his imperious temper, violence and ambition caused him to be imprisoned at Vincennes, in 1650, during the troubles of the Fronde, by order of the prime minister, Mazarin. Soured and enraged by this treatment, he escaped, some time later, and (in 1653) did not hesitate to enter the service of the Spaniards. He laid waste the provinces of the North. Five years after he be-

came reconciled with Mazarin, but was kept in the background. He was then living at Chantilly, and not being able to endure inaction, undertook large building operations there.

He began with the park, employing as architect-gardener a man whose name was destined to become celebrated in the art of laying-out gardens, Le Nôtre. Under this man's directions, immense works were commenced, on a plan which took twenty years to execute, comprising quite a system of canals and fountains. Never



FIG. 8. CHANTILLY CASTLE UNDER THE GRAND CONDÉ.
Le Parterre de l'Orangerie. Architect Le Nôtre.

has more been done to provide an abundance of water in a park. As is shown by the general view of Chantilly, the Castle is surrounded by water on all sides; but besides, in the park there are large canals, cascades, a machine for raising water to a high reservoir, and playing fountains which "ne se taisent ni jour ni nuit." The canals were big enough to admit a good-sized sailing boat, which used to go along them followed by another containing a band of musicians. Le Nôtre created Chantilly before Versailles. The king came there in 1671, and was so delighted with Le Nôtre's work that he engaged him for the work at Versailles, which was just being commenced.

A considerable portion of the Chantilly of Le Nôtre's time has disappeared. We have, however, some old views of it, one of which we reproduce (Fig. 7). It shows the French flower-bed, which stretched from the Castle to the small town of Chantilly. This has been replaced by an English park; but the big canal, the lateral

ones, the *sylvie* park and the *Cabotière* park still remain. It is from this period also that dates the terrace in front of the entrance, where Corneille's statue stands. One descends from this terrace to the park by flights of steps. Rockwork grottos ornament its two sides. The subjects designed by Le Nôtre were executed by the sculptor Jean Hardy (Fig. 9).

The great Condé drew to Chantilly the most renowned writers of the day, and provided work in the Castle and park for the best artists. He had Boileau, Racine, Molière (whose pieces were played in the Castle), La Fontaine, La Bruyère who lived there a long



FIG. 9. SCULPTURES AND FOUNTAINS ON THE WALLS OF THE GRAND STAIRCASE. Chantilly Castle. Designed by Jean Hardy under the direction of Le Nôtre.

time, Bourdaloue, Malebranche, Fénélon. However, his violent, imperious temper did not always make life pleasant to the men of letters whom he gathered together, and the following charming *mot* was once addressed to him by Boileau after an altercation: "Je ne discuteria plus avec Monsieur le Prince quand il aura tort."

Condé again took up military service in 1668. He seized the Franche-Comté for the king and distinguished himself by fresh victories.

He afterwards returned to Chantilly, and it was then (1671) that

he received the visit of Louis XIV., who came, accompanied by his court, for the purpose of seeing the works of which there had been so much talk. The king only spent two days there, and these two days cost Condé more than 180,000 francs. Mme. de Sévigné has left us a celebrated account of this reception, and it is worth quoting, as it gives us some valuable details concerning court life and that of the great nobles of the time. It also describes in a vivid way the death of Vatel, who was ex-butler of the Superintendent of Finance, Fouquet, and who had passed into Condé's service. Here is what the vivacious correspondent wrote on the 26th April, 1671:

"The king arrived Thursday evening. The hunt, the lanterns, the moonlight, the promenade, the collation in a spot carpeted with jonquils, all went off splendidly. We supped. There were a few tables from which the roast was absent, owing to several unexpected diners. This upset Vatel, who repeated several times: "I am disgraced; this is an affront which I will not support." He said to Gourville: "My head swims; help me to give orders" The prince went to his room and said to him: "Vatel, all is going well; the king's supper was the finest thing possible."



FIG. 10.—THE GREAT CONDÉ.

We know from Gourville's memoirs that there were four principal tables, viz., 1.—That of the king and his brother; 2, That of the Prince de Condé; 3, The Duc d'Enghien; 4, The Duc de Longueville; and no less than fifty-six other tables, for which tents had to be erected on the lawn. Mme. de Sévigné continues:

"At four o'clock in the morning, Vatel made a round and found everybody asleep. He encountered a small purveyor who was bringing in two loads of sea fish, and asked him: "Is that all?" The man answered: "Yes, Sir," not knowing that Vatel had sent for fish to all the seaports. He waited some time, but the other purveyors not appearing, he became excited, fearing he would get no more fish. He went to Gourville and said: "Sir, I shall not survive this disgrace; my honor and reputation are lost." Gourville laughed at him. Then Vatel went to his room, put a sword against the door and transpierced himself. But he did not fall dead until

the third thrust, for he gave himself two that were not mortal. In the meantime salt water fish was arriving from all sides. Vatel was sought for, to distribute it. No answer being given to the knocks at his door, the room was broken open and he was found lying in his blood. The prince, who was at once informed, heard the news with much sorrow, and the duke shed tears. . . ."

The changes effected by Condé in the architecture of the Castle were less happy than his embellishments in the park; yet they were entrusted to the greatest architect of the time, Mansart, who afterwards built the Château of Versailles. The man, however, counts for little when the method is bad. We give two views of Chantilly;

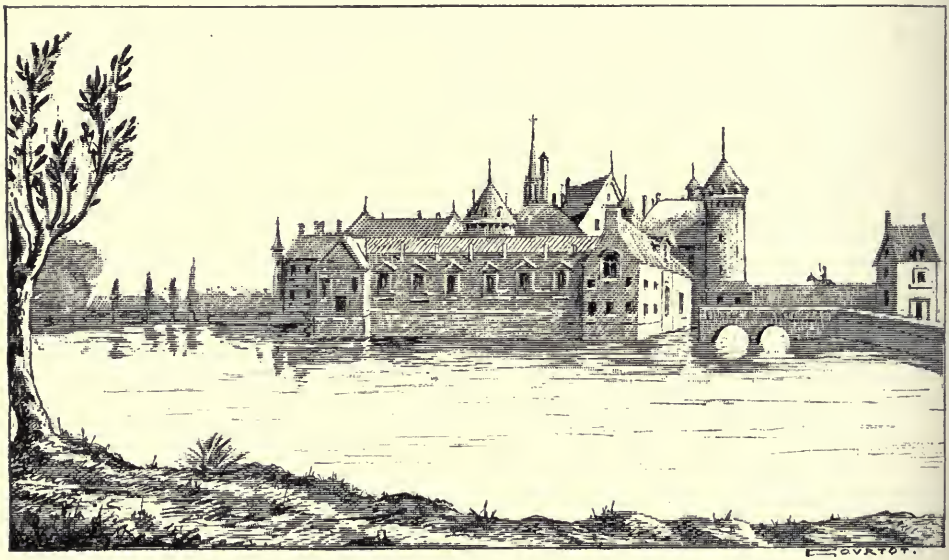


FIG. 11. CHANTILLY CASTLE IN THE 17TH CENTURY BEFORE MANSART.
Print by Israel Silvestre

one as it was under Condé but before Mansart's restorations, and the other as it was after Mansart, in the eighteenth century. The comparison is instructive.

In the engraving by Israel Silvestre (Fig. 11) one sees the picturesque outline that Chantilly retained from the Renaissance up to the second third of the seventeenth century. There are still towers and pointed belfries and high roofs, while the fronts are unsymmetrical. Mansart had not yet begun his task.

The newspaper "Le Mercure Galant" of September, 1688, tells us distinctly what was the scheme of this great architect, who displayed all the seventeenth century fondness for cold, solemn uniformity. "M. le Prince is having work done at present to make the

inside of the courtyard regular and give the outside quite a new face, either by the piercing of three rows of windows or by the roofs, which will be all of equal height à la Mansarde." "Regular!" The great word was let out. As can be seen by a glance at an engraving of 1738 by Dubourg (Fig. 12), Mansart's castle was perfectly regular; façades, windows, dormers and roofs, everything was brought into line. It was very ugly, however, and we have no cause to regret the disappearance of the "regular" but unpleasing château erected by Mansart.

Mansart had begun with the interior of the small castle. He

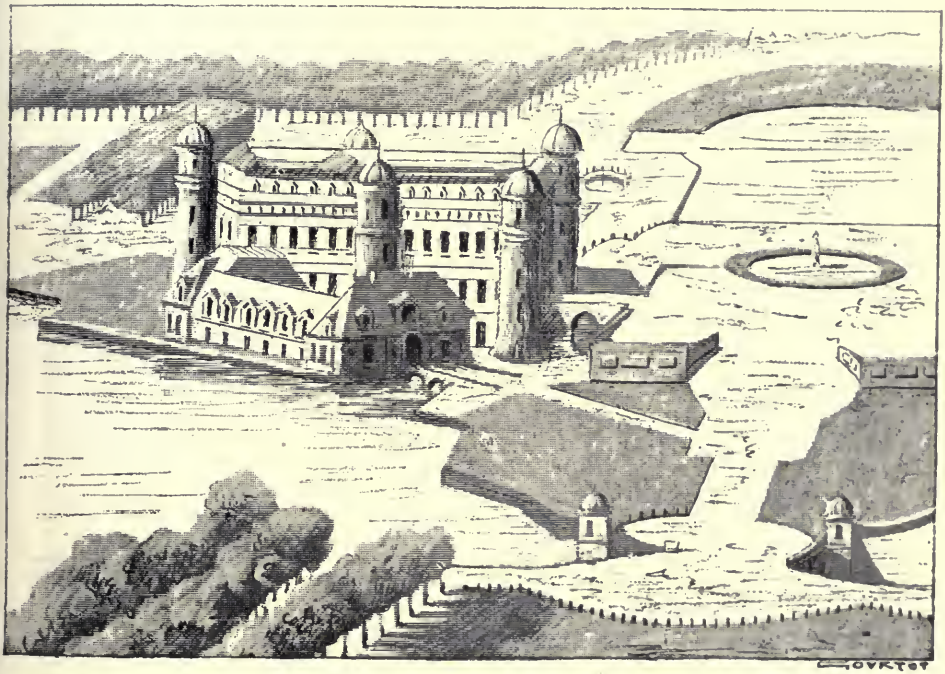


FIG. 12. CHANTILLY CASTLE IN THE 18TH CENTURY, AFTER MANSART.
Print by Dubourg.

arranged the rooms in the form they have retained up to now. They served as the personal quarters of the great Condé.

Condé died in 1686. In his hands Chantilly had acquired a European reputation. Princes, ambassadors, warriors and men of letters throughout the continent were eager to visit the beautiful home of the hero of Rocroi.

It was in the great Condé's time that the little town of Chantilly came into existence. It now has five thousand inhabitants, and is the chief horsebreeding center in France. The increasing number of visitors obliged Condé to allow the erection of a few houses near

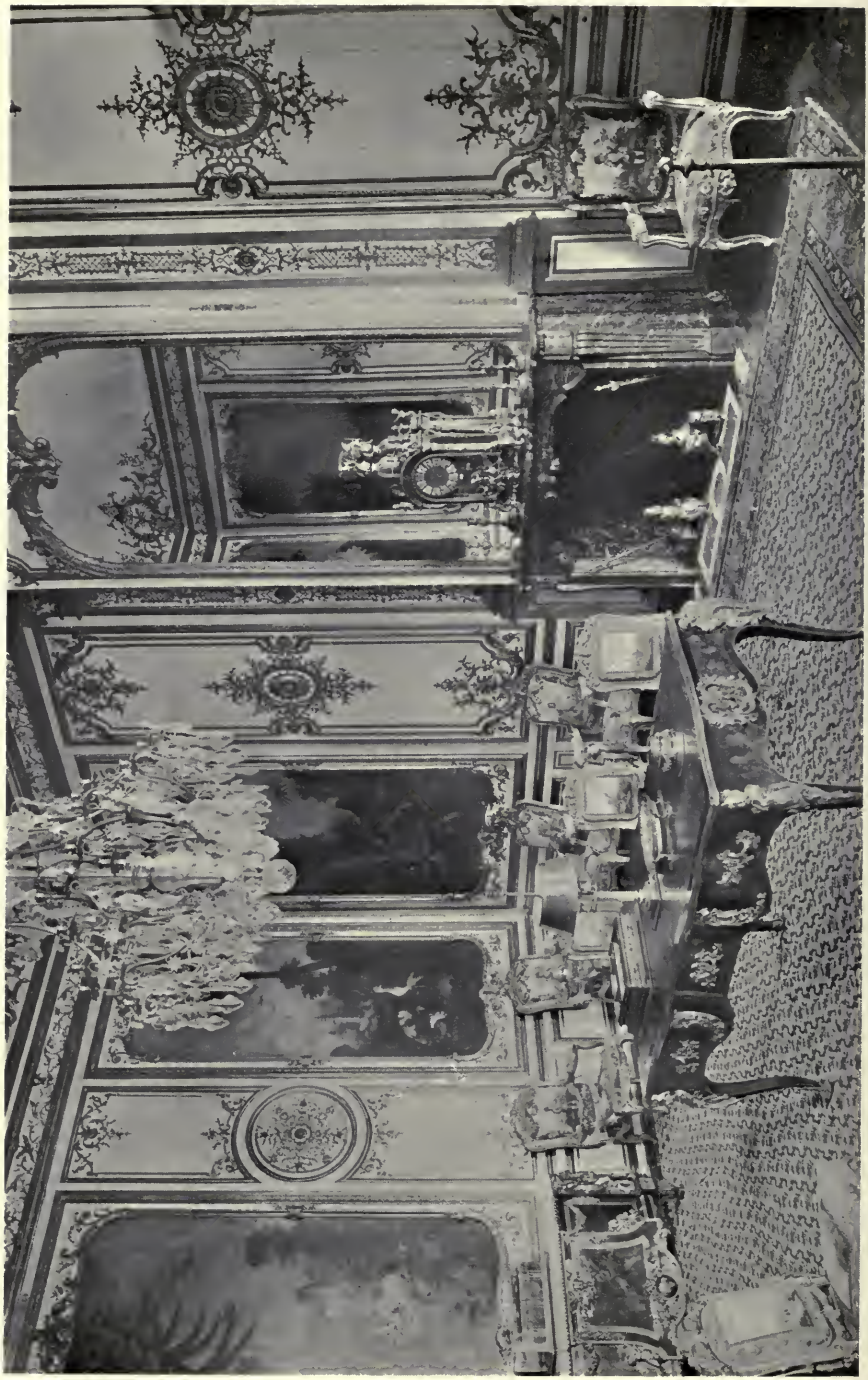


FIG. 13. ROOM OF THE PRINCE DE CONDE. Woodwork of 1720; Louis XV. Furniture. Chantilly Castle.

the Castle to serve as inns, and thus originated the modern town of Chantilly.

The affection for Chantilly was, moreover, hereditary with the Condés. The great Condé's son, Duc Henri Jules, also resided there. He, like his father, desired to embellish the park and the castle. He constantly walked about, followed by secretaries to whom he dictated the ideas that occurred to him for the beautifying of his domain. He expended immense sums of money upon it. He employed Coysevox and Coustou, and sent to Rome for copies of busts and statues of emperors, which are still to be seen, particularly in front of the small Castle. He gave sumptuous entertainments. He completed the *Galerie des Batailles*, in which all Condé's victories were depicted.

His son, the Duc de Bourbon, prime minister of Louis XV., continued the works. It was then that was executed that admirable gilded woodwork in the rooms of the Châtelet, being some of the finest models of Regency style, and the decoration of the *Salon des Singes*, which has been attributed to Watteau, but was in reality executed by Christophe Huet, in 1735.

This apartment has been preserved intact. It is a most perfect example of the decorative art of the eighteenth century. We reproduce a view of the Prince's bedroom (Fig. 13). All the woodwork was executed between 1718 and 1722. The ground is white, the relief gilt. The articles of furniture are not those which were originally at Chantilly; they come from the Condé's, however, and were put there by the late Duc d'Aumale. The seats, in Beauvais tapestry, represent rural subjects after cartoons by Leprince. They are in an excellent state of preservation. One hesitates to estimate the value of this large quantity of furniture when one thinks that six armchairs and a lounge in old Beauvais tapestry bring several hundred thousand francs at public sale. A chest of drawers inlaid by Riesener, with bronzework by Henrieu, would be a fitting pendant to the bureau of Louis XV. contained in the Louvre and which is by the same artists. The bureau standing in the middle of the room is Louis XV.; the decorative paintings are the work of Christophe Huet. We also publish a fragment of wood carving from the adjoining room in order that our readers may form a notion of the admirable style of this celebrated joinery work, and of the breadth and freedom of the relief work. Many copies of old styles have been made, but how cold, commonplace and lifeless our imitations appear when we have the originals before us in all their beauty. The *Salon des Singes* has the finest and brightest decoration. As Fig. 14 shows, the panels are painted. Huet's work is exquisitely graceful and well deserves the worldwide renown it enjoys.

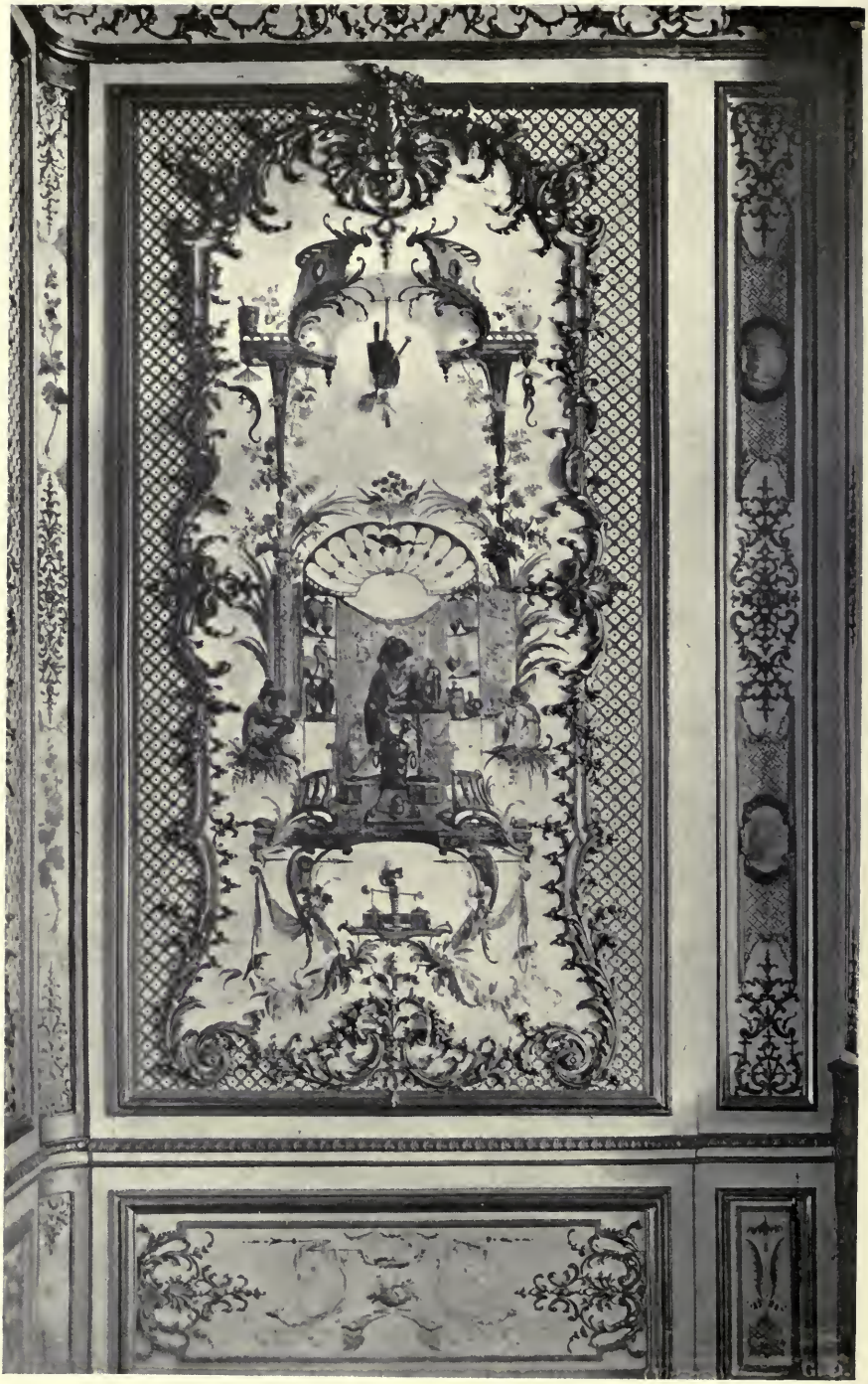


FIG. 14. PANEL IN THE "SALON DES SINGES."
Chantilly Castle. Christophe Huet, Painter.

This Louis Henri de Bourbon, grandson of the famous Condé, possessed a large fortune, which he tripled in operations of the bank founded by Law, author of the notorious scheme called the South Sea Bubble. When he ceased to be minister he went to live at Chantilly with his mistress, the Marquise de Prie, and held there what was really a royal court. Chantilly was at that time the scene of a romantic episode which ended sadly. The duke's sister, Mademoiselle de Bourbon, a very beautiful girl, loved a gentleman of the court of Louis XV., M. de Melun, and for his sake refused to marry a royal highness. As her brother opposed her union with

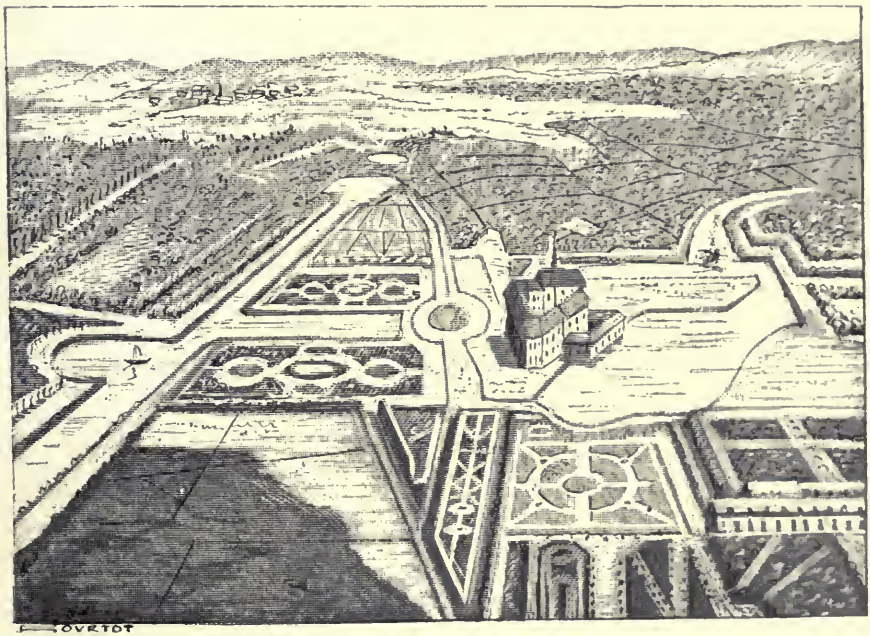


FIG. 15. GENERAL VIEW OF CHANTILLY IN THE 18TH CENTURY.
From an engraving by Perelle.

M. de Melun, the lovers decided upon a secret marriage. One night M. de Melun and Mademoiselle de Bourbon crossed the grand canal in a boat and went to a priest, who married them. But it was a shortlived union, for the next day, during a hunt, M. de Melun was injured by a stag and died within a few hours. A funeral service took place in the Castle Chapel. Mademoiselle de Bourbon was present at his death and at his funeral, with a broken heart, but afraid to avow that she was the wife of the dead man.

The same Duc de Bourbon built the Chantilly stables, one of the best examples of eighteenth century architecture and Aubert's masterpiece. Their erection occupied from 1720 to 1735, and the dec-

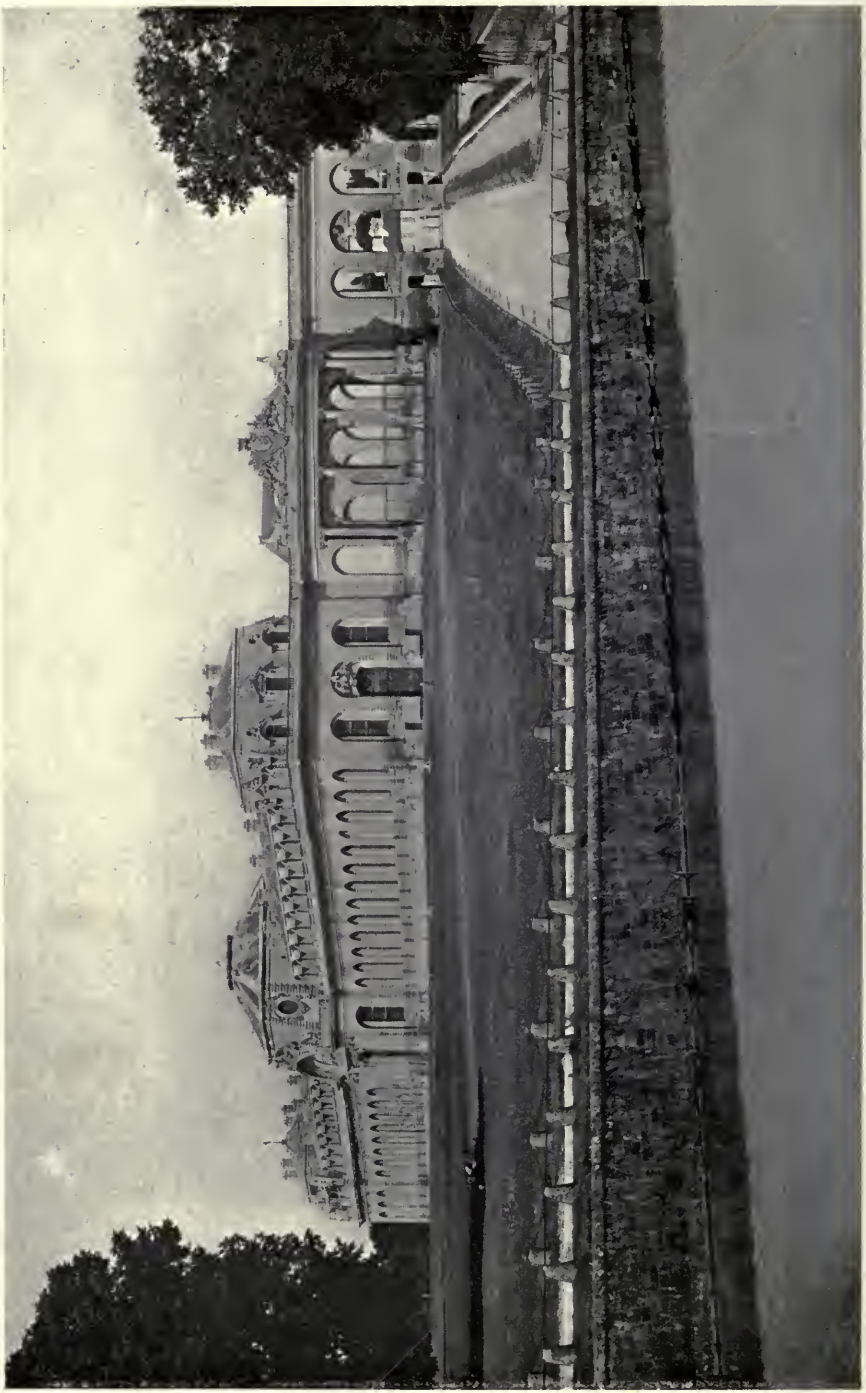


FIG. 16. THE STABLES AT CHANTILLY.
One of the best buildings of the 18th Century.
Designed by Aubert.

oration, by Bridault, was only completed in 1736. The principal block has a length of 610 feet, with a height of 45 feet up to the entablature. It is terminated by two square pavilions and is cut in the middle by a large pavilion with a hip-roof. The doors of the square pavilions are surmounted by end-ornaments, upholding three horses, viewed in face and the heads and legs of which are salient. Our Fig. 16 shows the principal front of the stables properly called, which border on the present Chantilly racecourse. It is a building of one story with garrets, and is of fine style, noble and harmonious. Its remarkable stone dressing produces a strong impression. It is one of the most successful works of the time, and I am inclined to compare it favorably with the pleasing creations by Gabriel, to be seen on the Place de la Concorde in Paris.

When the emperor Paul I. of Russia visited France incognito under the name of Comte du Nord, in 1782, he went to Chantilly, and grand festivities and magnificent hunting parties were organized in his honor. It is said, but the story is probably an invention, that one evening the Duc de Bourbon led the Comte du Nord to dine, together with his suite, in a splendid apartment all hung with Gobelins tapestries, between which shone tall bronze candelabra. And the Duc asked the Tsar: "Sire, where do you think you are?" The Tsar replied: "In the largest room of the Castle, which I had not seen before." Then the duke made a sign; the tapestries were drawn back all at once, and the diners saw a hundred horses in their stalls with grooms at their heads. The table had been laid in the central pavilion of the stables!

The last Condé who lived at Chantilly was Louis Joseph de Bourbon, who was born in 1735 and died in 1818. Like his ancestors, he developed the park and added to its beauties. He also increased the collections contained in the Castle by purchasing various works of art. It is to him that we owe the "*Ile d'Amour*" and the small temple with the antique Venus-Callipyge, the present *Pavillon d'Enghien* and the tennis court. He also made the *Hameau* and the *Jardin Anglais*, which were begun in 1772 and which indicate the revolution in taste which was then taking place in France. At the Trianon Marie Antoinette imagined the Bergerie, and with her white hands made butter and cheese. It seemed as if nature and her beauties had just been discovered for the first time. A dislike was taken to the regular, methodical, artificial laying-out of lawns in the French style. There was, however, a good deal that was artificial in the new taste. People played at shepherds and pastoral life, but it was only a comedy. At Chantilly, when the Princesse Louise made her entrance there in 1775, shepherds and shepherdesses welcomed her at the Hameau with rustic songs and country dances. The life led by the occupants of the Caste was pleasant and



FIG. 17. MAIN ENTRANCE TO THE CASTLE OF CHANTILLY.



FIG. 18. THE GREAT STAIRCASE OF THE CASTLE OF CHANTILLY.

free from cares. Never had idle, luxuriant living attained such perfection. Select company, high-placed men and lovely women, a few artists and writers, a philosopher or two to make conversation, a magnificent château full of the finest works of art, big forests close by in which to hunt the stag, the deer and the boar, boating on the grand canal, followed by another boat full of musicians, picnics at the waterside, then, in the evening after supper, a comedy, succeeded by fireworks in the middle of the water. But it was the life of *Fêtes galantes* depicted for us by talented painters; it was a life wholly taken up by pleasure—a perpetual *Embarquement pour Cythère*; dresses of red violet silk, shady bowers, soft breezes, with the dash of sentimentality needed to give pleasure a rarer savor.

But such a life cannot last. We are clearly not intended to exist exclusively on cakes which we do not earn, while around us are millions of poor people who cannot get bread. The Revolution broke out like a thunderclap, and the delicate, selfish enjoyments of a favored few were at an end. The people now made their powerful voice heard. The Prince de Condé was the first to take alarm. As early as 1789 he gave the signal for emigration, and soon afterwards he was at Coblentz, at the head of that army of émigrés which, allied with the foreigner, came to fight France. Chantilly Castle paid for its master. In 1789 the national guards of Paris came there and carried off the cannons, and there was also a small amount of pillaging. Then, in 1792 and 1793, most of the furniture, pictures and works of art were removed to Paris by order of the government. What remained was sold at auction. Thus was scattered in three short years what it had taken four centuries of constant efforts and immense outlay to gather together. Nothing was left at Chantilly of all that had ornamented it. The Castle, after serving as a prison for the suspected persons of the county, was sold to speculators and totally demolished, with the exception, as we have seen, of the Petit Château, the stables, and the Château d'Enghien.

Under the Empire, Chantilly belonged to Queen Hortense. At the Restoration, the Prince de Condé again entered into possession of his property. He went to live in the Petit Château. It was he who made the present English garden (1820). He brought back a few things which the State was willing to restore to him, and these are still at Chantilly to-day.

The last Condé died in 1830, without children, leaving Chantilly and his fortune, which latter was considerable, to his nephew, the Duc d'Aumale.

But the time when Chantilly was to flourish once more had not yet come. After the Revolution of 1848, the Duc d'Aumale was banished and Chantilly confiscated. The English banking firm of

Burdett, Coutts & Co. bought the property for eleven million francs. The duke did not return to France until after the Franco-German War of 1870. He too was alone in the world, his wife and children being dead. Chantilly was restored to him by virtue of a decree rendered by the National Assembly. He decided to rebuild the Château and make it once more a rich sanctuary for Art—not for a selfish purpose, but in order to bequeath it to the nation. He called to him a young architect who was already well known, M. Daumet, and in 1876 a start was made. The work was finished in



FIG. 19. THE CASTLE OF CHANTILLY, AS SEEN FROM THE ESPLANADE.

1882. It is this modern, this princely edifice that we have now to examine.

* * * * * *

The Duc d'Aumale wanted to build a château that should recall, not the cold regularity of Mansart's production, but on the contrary, the elegance and picturesqueness of the Renaissance building, a building much more suitable for the site. The task was a difficult one, as the lines of the old foundations, which it had been resolved to retain, made it necessary to follow an awkward configuration, as will be understood from the plan which we reproduce. M. Daumet solved the plan in an admirable manner. The Chan-



FIG. 20. GALLERY OF THE STAGS.
Formerly the Dining-Room.
Chantilly Castle.

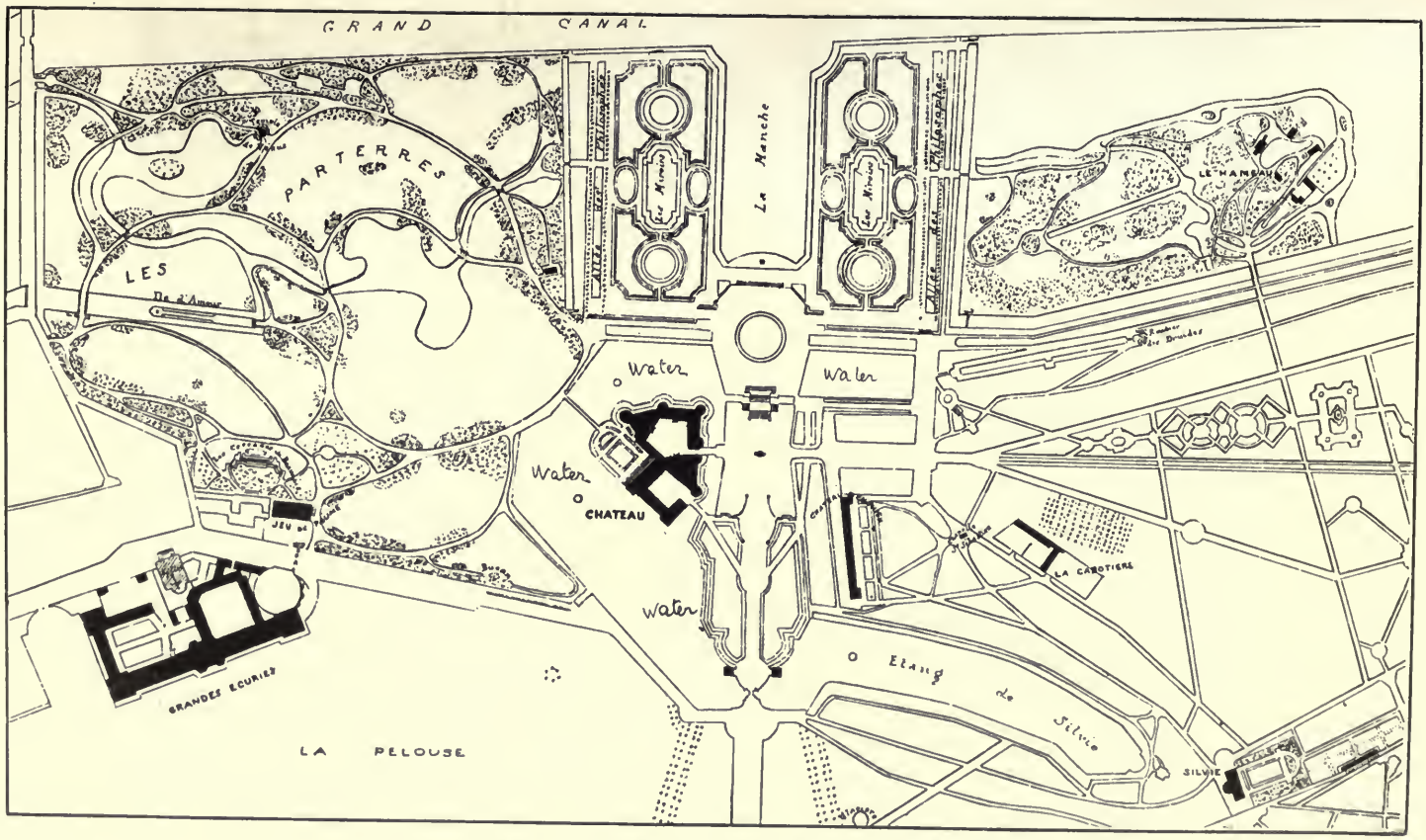


FIG. 21. PLAN OF CHANTILLY CASTLE AND ITS ENVIRONS.



FIG. 22. ALTAR IN THE CHAPEL OF CHANTILLY. Jean Bullant, Architect. Jean Goujon, Sculptor.

tilly of to-day, like the old Castle, is entirely surrounded by water. It is entered over a stone bridge (Fig. 24). The general aspect is extremely picturesque and alluring, without narrowness of execution, but, on the contrary, with a fine fulness in the frontages giving on the park, cut at each corner by a tower. From a distance, the general view of Chantilly, reflected in the water, with its turrets, its weather vane (on the chapel), its monumental chimneys, and the steep slope of its roofs, is exceedingly fine. This royal castle rising from amid the waters produces a unique effect.

The Castle is reached by an easy gradient ending on an esplanade upon which stands a statue of the High Constable, Anne, sculptured by Paul Dubois, facing the home of his ancestors, rebuilt and restored to its former splendor. The esplanade, which is surrounded by walls at the angles of which are statues, some modern, some seventeenth century, leads to the main entrance to the Castle, the courtyard of which is closed by a gallery of very ingenious composition, connecting the chapel with the right hand block by a series of arcades of handsome design. At the gate itself, above the bridge spanning the moat, stand marble replicas of Michael Angelo's two *Captives*, which the High Constable Anne brought back with him from Italy during the wars of François Premier and placed in the Château d'Ecouen. The originals are now one of the treasures of the Louvre Gallery. Having traversed the bridge and the gateway, one enters the grand courtyard, of which Fig. 28 gives an inside view. The chapel forms one corner thereof. This chapel is a charming and original creation, quite after the sixteenth century taste, at which time there still remained some invention and variety about architecture. One also admires the covered gallery, a thoroughly Renaissance composition. I do not care so much for the lions above the gateway, at the four corners of the bell-turret. They appear to be afraid of falling and to hold on convulsively by their claws.

In the large vestibule, which is reached by a covered carriageway, there is the grand staircase leading to the lower floor which used to be the quarters of the Prince in the old Castle and which this vestibule connects with the new one. Fig. 18 shows the arrangement of this vestibule and of the grand staircase, the balustrade of which (modern) is a masterpiece of forged iron, as is shown by the detail. This balustrade was designed by Daumet and made by Moreau Frères. Opposite the grand staircase, a few steps take one to what used to be the dining-room of the Duc d'Aumale, but is now called the *Galerie des Cerfs* (Fig. 20). On the walls of this spacious apartment hang splendid Gobelins tapestries of the seventeenth century bearing copies of the well-known scenes called: *Des Chasses de Maximilien*, which date from the sixteenth

century. Thence one passes into a very large Picture Gallery filled with masterpieces of all the schools. The two wings to the right and left of the Picture Gallery are occupied by museum rooms in which are displayed valuable canvasses and works of art collected by the Duc d'Aumale for Chantilly as far back as 1850. Among other admirable works there, one sees *La Vierge dite d'Orléans*, by Raphael, and the celebrated 40 miniatures belonging to Estienne Chevalier's Primer, painted in the middle of the fifteenth century by Jean Fouquet.

The Library has been built on the site of the old moat which separated the big Castle from the Châtelet. It contains some very fine bindings of the sixteenth century, besides rare books of all sorts.

Then come the former apartments of the great Condé in the small Castle, of which we have given some detail views and a view of the *Galerie des Batailles*. On the ground floor, underneath this apartment, are the rooms which were used by the Duc d'Aumale. Next there is the Chapel, in which several old works of art have been reinstated—admirable pieces of inlaid wainscoting dating from the sixteenth century, and stained-glass windows of the same period. There is also an altar of Senlis stone, the joint work of Jean Bullant and Jean Goujon (Fig. 22).

Such is the Château de Chantilly of our day. It is now beyond the reach of those vicissitudes to which private property is liable. The Duc d'Aumale has left it by will to the Institute of France with express directions that it be always kept freely open to artists, savants and scholars. The present estate comprises more than 14,000 acres, the greater portion being forest land which is let out for hunting and shooting. The property produces a yearly revenue of about eighty thousand dollars. The money is applied to the upkeep of the Castle, park and collections, which may be increased by donations and purchases. Henceforth, Chantilly will be one of the French shrines for all lovers of art.

Jean Schopfer.



POLO PONY STABLE.
"Harbor Hill," the Estate of Mr. Clarence Mackay, Roslyn, L. I.
Photo by Thomas E. Marr.
Warren & Wetmore, Architects. Guy Lowell, Landscape Architect.

THE LAY-OUT OF A LARGE ESTATE.

"Harbor Hill," the Country-Seat of Mr. Clarence Mackay, at Roslyn, L. I.

THE increasing tendency on the part of Americans to live more in the country, and to take more interest in their country places is having an important effect upon American architectural practice. Landscape architecture is becoming a well-recognized department of architectural design—recognized, that is, not merely by the profession, but by the clients of the profession. Time was when the good American, even if he admitted the assistance of a trained designer in working out the plans of his house, never doubted his own ability to select its location together with that of the outlying buildings, and to plan the approach and the other lines of communication. As to the arrangement of the flower beds that was a business, for which the only necessary qualification was the wearing of a petticoat. A good deal of this general disposition still remains. The ordinary American when he is building himself a country place, is much more likely to defer to expert counsel in the design for his house than he is in the lay-out of his grounds; and this is true in spite of the fact that the problem presented by the lay-out of an estate of as much as a few acres is frequently as difficult and as technical as the problem offered by the design of the house.

In fact, one might go further and declare that the average man of intelligence is much more likely to understand the means, whereby a successful architectural result is obtained than he is to understand

the means, whereby a successful result is obtained in landscape architecture. Well-designed buildings are more familiar to him than well-designed estates, and he generally fails utterly to appreciate that the values to be sought in deciding on the situation of a house, a flower-garden, and the convenient accessories of a country place are as abstract as the strictly architectural values and perhaps even more recondite. The situation of the house in relation to the view, the exposure, the prevailing winds, the surrounding foliage, and the other buildings; the situation of the garden in relation to the house, the exposure, the view and the trees; the scale and dimensions of the house in relation to the large planting; the extent to which the straight lines of an enclosure or of some subordinate architectural feature are desirable either to define the view, or partially to shut it out; the careful distribution of open and planted spaces in the immediate vicinity of the house; the use of proper planting, sometimes to soften the architecture, sometimes to complete and enhance certain native landscape effects, or sometimes to add a spectacular and dramatic quality to certain particular points of view; the lay-out of the approaches for the purposes both of convenient access and of the best effect; and the running of the roads in relation to the grades of the land and the making of entertaining vistas—the complete satisfaction of all these requirements or of half of them, is not a business which an amateur, even in a petticoat, is qualified to supply; and requirements of this kind, although less complicated and numerous, exist in the cases of comparatively small estates as well as in those of larger size.

The problems of landscape design are, in truth, so special that some landscape architects claim for it a wholly special province. The claim is that the landscape architect should be carefully distinguished from the house architect, and that, when it comes to designing a large estate, the two kinds of architect should in some way work together. Whether in such instances of coöperation the landscape architect should commission the house architect, just as the latter might commission an engineer to design a heating plant, or whether the house architect should commission the landscape architect, or whether both should be independently commissioned by the owner of the estate—these several alternatives, which might cause some difficulty in practice, have been left open both by people who make this claim and the owners who have sought to make the claim good. As a matter of fact all three methods have been used, and doubtless will continue to be used; but I do not believe that the landscape architects will become a branch of the profession rigidly distinguished from house architects. At the present time many excellent architects are undoubtedly ill-qualified to lay out an elab-



THE LODGE AND GATE AT "HARBOR HILL."
The Estate of Mr. Clarence Mackay, at Roslyn, L. I.
Photos by Thomas E. Marr.
McKim, Mead & White, Architects. Guy Lowell, Landscape Architect.



THE MAIN AVENUE OF "HARBOR HILL."
The Estate of Mr. Clarence Mackay, at Roslyn, L. I.

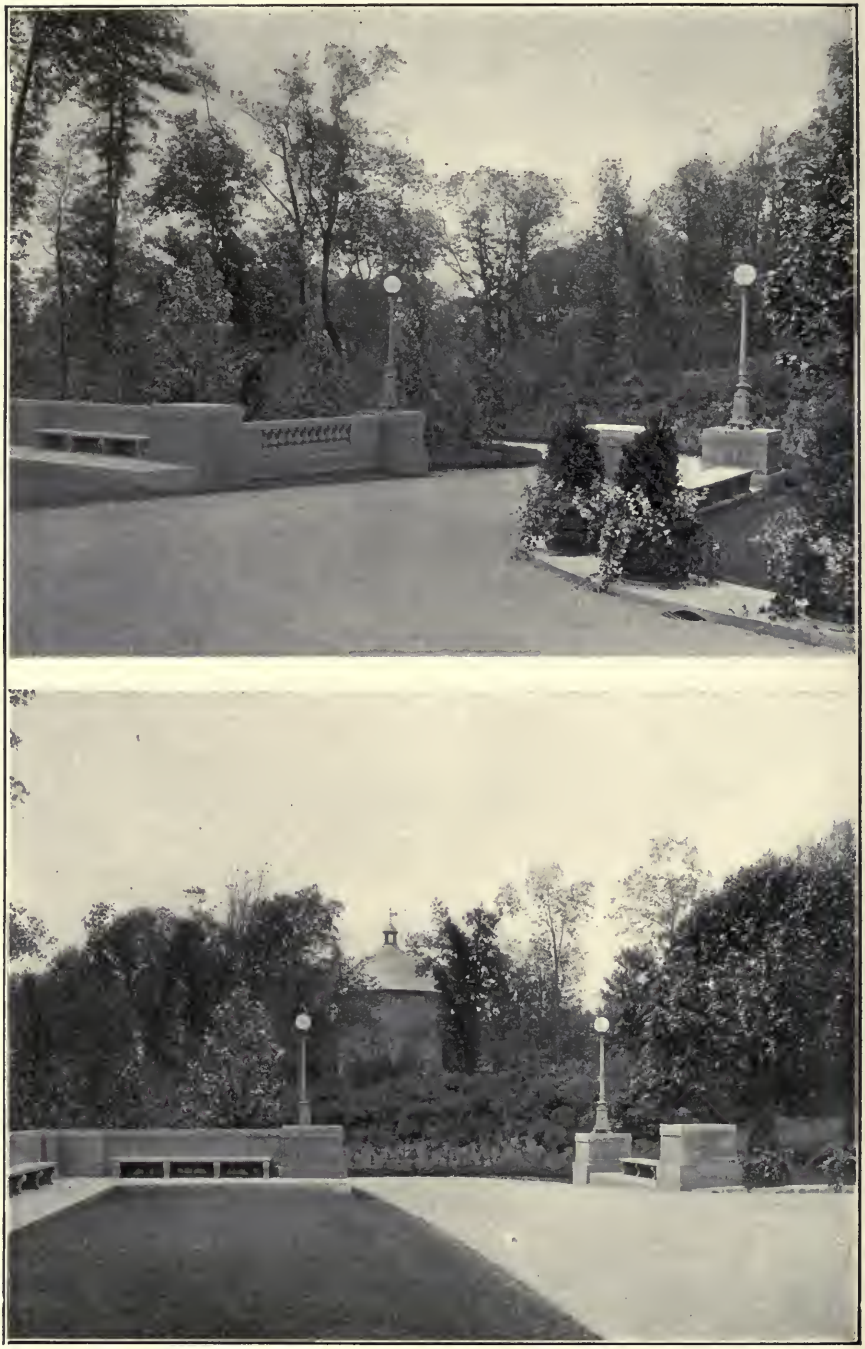
Photo by Thomas E. Marr.

Guy Lowell, Landscape Architect.

orate or even a small country estate. They know little about landscape in relation to architectural values; and in journeying through suburban regions inhabited by well-to-do people, one frequently sees the design of a tolerable house defeated by a wholly intolerable surrounding of landscape architecture. There is probably no form, for example, which American architects have borrowed from Europe, which has been more frightfully misused than the pergola. For this reason it would be well for candid architects, who distrust their training, gifts or experience as landscape designers, to call to their aid men, specially qualified to do this kind of work. But it is improbable that the two branches of the profession will be rigidly divided. Certain architects will be celebrated particularly for their work in landscape architecture; but the landscape architect will, whenever he gets a chance, design the buildings as well as the lay-out, while the house architect will consider himself, and I hope will be, as fully competent to lay out an estate as he is to decorate a handsome room.

The number of large country estates, in which a serious attempt has been made to obtain a complete architectural and landscape design is comparatively small. The American farmer, whether he churned a few hundred acres on a New England hillside or a few thousand acres of western prairie, has rarely had the money, the taste or the leisure to do anything with his land but work it. On the other hand, rich men of business, in buying a country place, have until recent years been generally satisfied with a palace on a lot. Even when they owned comparatively large estates they had little impulse really to develop them; and this was only natural, because there is little use in spending lavishly for the purpose of making a country estate handsome, unless its owner has the patience to wait for results, and the leisure to enjoy them. Well! the owners of such estates take more leisure now than they once did. They spend more time in the country and more money upon it. They are becoming, if you please, country gentlemen, though in a different sense from an English country gentleman. They do not derive their substance from the soil, and their estates are laid out solely for their own pleasure. The farm is accessory to the house. The estate has no function, except the important one from a certain point of view, of contributing to the pleasure of the owner.

When country places assume the character indicated above, it is in some respects a limitation and in others an advantage. There can be no doubt that the peculiar charm of the English country-houses has issued from the permanent and substantial ties which have connected their owners with the soil. These gentlemen lived not only in the country, but on it. For generations they



THE BELL-MOUTH AT "HARBOR HILL."
The Estate of Mr. Clarence Mackay, at Roslyn, L. I.
Photos by Thomas E. Marr. Guy Lowell, Landscape Architect.

have given lavishly of their time and money, so that their houses and the surroundings might look or serve its purpose better; and this prolonged and devoted attention to the good of their estates has redeemed many initial architectural mistakes, and has absolutely confirmed the value of many happy architectural ideas. But the English country places are unique in the continuity of the social and economic conditions out of which they were born. In the other countries of Europe forms of landscape architecture have been wrought, which in the essentials of appropriate design are superior to the English country places; and they have been wrought under economic conditions analogous to those which now prevail in this country. The Italian villas and gardens and the later French chateaux were erected for gentlemen who were merely sojourners on the soil; they were designed together with their surroundings for the purpose in one way or another of amusing owners, who derived large incomes generally from official employment; and these large incomes enabled their possessor to have their estates laid out in the light of a consistent and comprehensive architectural idea. In our own country the owners of very large estates are similarly free to conduct their operations in a generous way. By the lavish expenditure of money in energetically realizing a comprehensive plan, the architect can keep his client interested by means of quick and spectacular results.

The majority of the very large American country estates are situated in the vicinity of New York. Their owners are for the most part tied to the vicinity of Wall and Broad Streets by golden strings. They want the quiet of spacious country estate, and rapid transit to New York. Some of the estates are situated along the Hudson and some in New Jersey; but on Long Island more than anywhere else; and among the Long Island estates, one of the most interesting is "Harbor Hill," the estate of Mr. Clarence Mackay, at Roslyn. It is one of the most interesting because of its size, the opportunities which it offered, and the extent to which these opportunities have been used. The estate is by way of being completely developed to serve its purpose as a gentleman's residence; and it is extraordinary how much has been accomplished in a few years to touch up the landscape and soften the architecture with supplementary planting. The effect will, of course, be still greater after this planting obtains a good growth, and after certain additional improvements have been made; but the illustrations which accompany this text are as interesting for what they show as for what they promise.

In the case of "Harbor Hill" several different architects have coöperated to carry out the complete design. The house and the lodge are the work of Messrs. McKim, Mead & White: the stables,



THE STABLE AT "HARBOR HILL."

Photos by Thomas E. Marr.

Warren & Wetmore, Architects. Guy Lowell, Landscape Architect.

the barns, the dairy and the other accessory buildings have all of them issued from the office of Warren and Wetmore. Finally the designing of the approaches, the connecting roads, the planting and the garden was placed in the hands of Mr. Guy Lowell. Just at present we are interested exclusively in the work of Mr. Lowell. When he assumed charge of his share of it, the house was already under construction, and that element of the design was a condition rather than an opportunity; but the locations of all the other buildings were selected by him subject, of course, to the wishes of his clients, and the whole estate was laid out, cleared and planted under his supervision. While not responsible, consequently for the design of any of the buildings, or for the line of the road from the station to the house, he is responsible for their setting, for their approaches, for their arrangement, and for their connections.

The estate of "Harbor Hill" includes roughly about five hundred and thirty acres. It is a solid chunk of land about a mile square, bounded by the railroad, and the highway, with no public roads running through it, and with its dimensions approximately equal in every direction. Of the five hundred or more acres which it contains, only about seventy are cleared or cultivated land. The rest is timbered, and for the most part the timber is large and fine. The trees consist chiefly of hardwood, such as oak and chestnut. There are no evergreens, except a few cedars, and Mr. Lowell has cleverly used to the utmost advantage the small chance that he had to obtain winter foliage.

The name of the estate, "Harbor Hill," indicates that it does not consist, as so many estates on Long Island do, of perfectly level ground. On the contrary, it contains a large hill, which practically comprises the whole of the property. The top of the hill is pushed somewhat towards the southern line of the estate; but it is near enough the center thereof to justify the description of the property as a hill with approximately similar slopes in every direction. As a matter of fact the south slope towards the railroad station is steeper than the slopes in the other directions. On the other hand, the gentler northern slope terminates in fifty acres of comparatively flat land, a half a mile or more from the top of the hill.

In laying out such an estate as this for a gentleman's residence, certain arrangements are immediately suggested as given by the conformation of the land. The house would naturally be situated on the top of the hill, which, as it happens, affords an exceptionally good location for a handsome residence, and really magnificent outlooks both south and west. The hill is and always has been called "Harbor Hill," because it overlooks Hempstead Harbor, and because in former days its commanding position was used for a beacon to assist boats in entering the harbor. Since the whole of

the estate is tributary to the residence, the site of the residence became the central point of the lay-out, just as it was the dominating point in the conformation of the land. The roads radiate from this center, their lines being determined partly by convenience, partly by the grades of the hill, and partly by their appearance. Thus, as already mentioned, the south slope is steeper than any other. At the same time, since the railroad station is situated at the foot of the hill in that direction, the main approach to the house must climb the steeper slope. Even if it were desirable from the point of view of design to run the main road straight to the top of the hill, it would be impossible because of the heavy grade; and as a matter of fact, the drive curves gently up the hill until it reaches the top, at which point it turns into a straight approach.

If the conformation of the land established the top of the hill as the one inevitable site of the house, it is equally true that the level fields at the northern end of the property were marked as the proper place for the farm buildings and the service gardens. The only building on the top of the hill except the residence is the carriage house and stable. The other accessory buildings, the kennels and the chicken farm excepted, are scattered along the northern boundary of the property. They are not all of them grouped together, because, although such grouping is, perhaps, more convenient and economical, it results in a less interesting and varied lay-out. As it is, the superintendent's house, the farm buildings, the polo pony stables, the conservatory and gardens are most of them well separated; but they are connected with the house by a service road which takes a fairly straight course through the woods. The chicken farm is situated on the side of the hill near the eastern boundary of the property, and the kennels in the woods and closer to the house. Besides the road from the station to the farm buildings, to the chicken farm, and to the workshops, there is a handsome road to the north called the "North Drive," so as to connect the house with the water. The tradesmen are not allowed on the main approach, or upon the North Drive, and as the service road is inconvenient for them, the road to the chicken farm is partly for their benefit. In addition the estate is cut up with a number of attractive drives and bridle paths, across the woods, and running from one to another of the main roads. Indeed these woods are really laid out as a park, and, as we shall see, when we come to describe their planting, the effect of one kind of a park has been carried out in all the details of the design.

In the lay-out of a large estate it is generally the practice to keep the design of the grounds immediately around the house somewhat formal, so that a proper transition can be made between the definite lines of the architecture and the sinuous incoherence of nature;



APPROACH TO THE STABLE OF "HARBOR HILL."

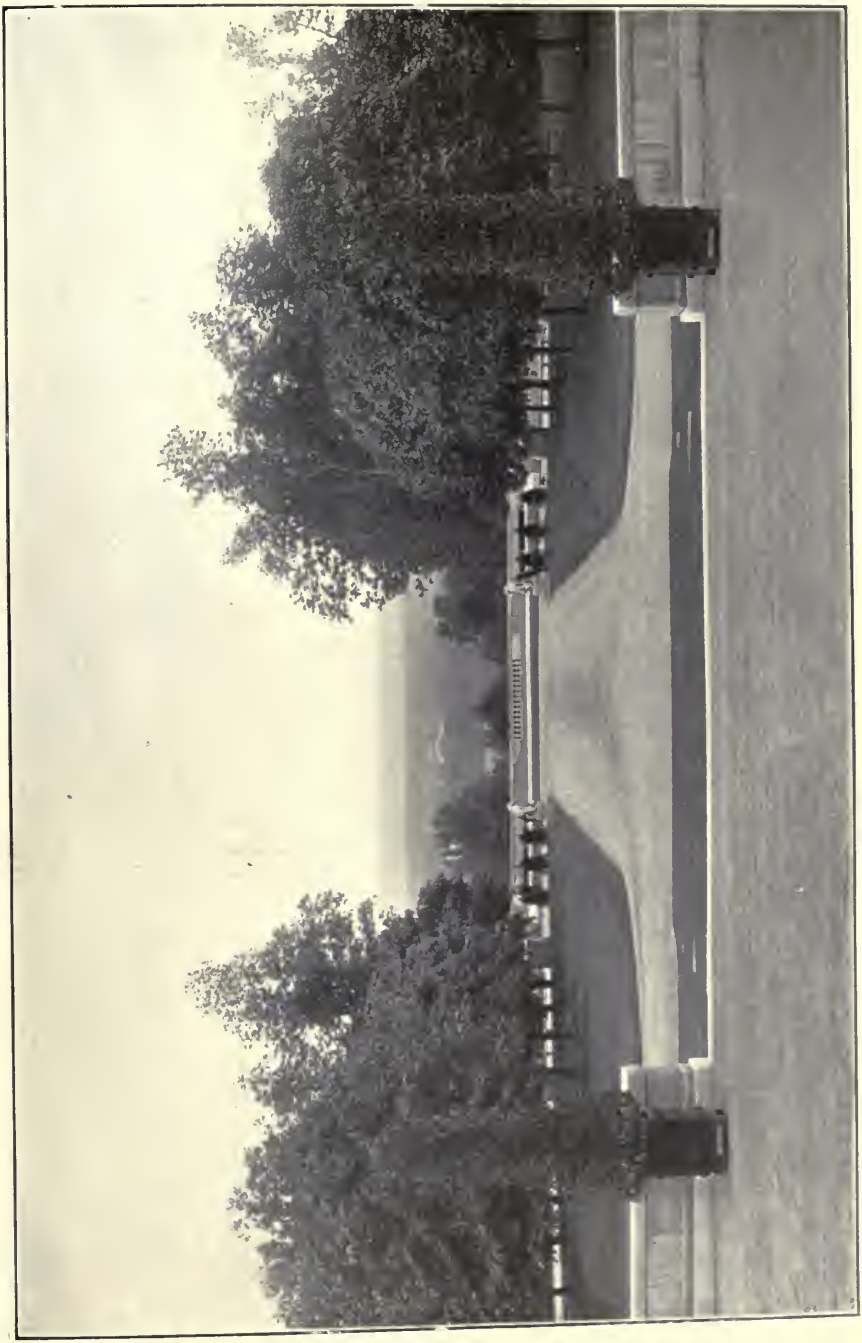
Guy Lowell, Landscape Architect.

Photo by Thomas E. Marr.



THE MAIN APPROACH TO "HARBOR HILL."

McKim, Mead & White, Architects. Photo by Thomas E. Marr. Guy Lowell, Landscape Architect.



LOOKING SOUTH FROM THE HOUSE AT "HARBOR HILL." Guy Lowell, Landscape Architect.

Photo by Thomas E. Marr.



THE WEST VISTA FROM THE TERRACE OF "HARBOR HILL." Guy Lowell, Landscape Architect.

Photo by Thomas E. Marr.



WEST FRONT OF THE HOUSE AT "HARBOR HILL."
Showing the unfinished formal garden.
Photo by Thomas E. Marr.

McKim, Mead & White, Architects.

Guy Lowell, Landscape Architect.



THE HOUSE OF "HARBOR HILL," FROM THE WOODS TO THE SOUTHWEST.

McKim, Mead & White, Architects. Photo by Thomas E. Marr. Guy Lowell, Landscape Architect.



THE TERRACE AT "HARBOR HILL."
Photo by Thomas E. Marr.

McKim, Mead & White, Architects. Guy Lowell, Landscape Architect.



BRIDGE IN THE WOODS ON "HARBOR HILL."

At this point the North Drive crosses the Service Road.

Photos by Thomas E. Marr. Guy Lowell, Landscape Architect.

and when this is done it is often difficult to run the more formal into the less formal parts of the scheme without passing rather abruptly from the one to the other. This aspect of Mr. Lowell's work was in the present instance made easier than usual, because the area immediately around the house but on the top of the hill, was naturally marked for formal treatment, while as soon as the land began to fall away, a less formal lay-out and scheme of planting was plainly suggested. It will be seen from the photographs that the immediate approach to the house consisted of a broad avenue running from the brow of the hill to the terrace and lined with



THE DAIRY OF "HARBOR HILL."
Photo by Thomas E. Marr.
Warren & Wetmore, Architects. Guy Lowell, Landscape Architect.

large maple trees which, it may be remarked, have been very recently planted. This avenue is a case absolutely of making over the land in order to suit the convenience of the residents of the house. In the beginning a deep gully intervened between what is now the bell-mouth and the terrace, and in order to obtain a straight formal approach the gully had to be filled in at an expense of many thousand dollars. The other straight and level road leading at right angles from the stable to the bell-mouth consists also of made land, which is one reason why the trees, which were of large size when transplanted, have proved to be such thrifty growers. The avenue



A WOOD ROAD AND THE SERVICE ROAD AT "HARBOR HILL."

Photos by Thomas E. Marr. Guy Lowell, Landscape Architect.



THE FARM BUILDING AND THE KENNELS AT "HARBOR HILL."

Photos by Thomas E. Marr.

Warren & Wetmore, Architects. Guy Lowell, Landscape Architect.



CONSERVATORY AND SERVICE GARDENS AT "HARBOR HILL."

Photo by Thomas E. Marr. Guy Lowell, Landscape Architect.

leading up to the house serves, of course, not only as an approach, but as a vista through which the very extensive and beautiful south view is seen. From the veranda on the west side of the house, the foliage has also been cut out, and a very lovely outlook has been gained thereby. In the distance are the Wheatleigh Hills, which are seen through a vista of trees and over what is at present a mall of green grass. The grass, however, or at least part of it, is only temporary. It is on this side that the formal garden is eventually to be situated, and a very remarkable opportunity the location affords for this kind of treatment. A formal garden on this site will be near enough to the house both for the easiest access, and to justify architectural features harmonizing with the lines and the scale of the house itself; it will, also, be bounded two sides by high trees, which inevitably check any excessive emphasis of the garden architecture, and give it a green background; and finally a very lovely landscape will be visible across the garden, but at a sufficient distance to prevent any clash between the modest beauties of the garden and the great expanse of the view. While the terrace and the bell-mouth have been defined by straight architectural lines, Mr. Lowell gets his formal effect in the immediate vicinity of the house chiefly by means of formal planting. In so doing he does not try to imitate the English evergreen hedges. The formal planting consists chiefly of the maple trees mentioned above, which were selected from a much larger number, because of the fullness of their foliage. These trees, which are about twenty-five feet high and wide, have been trimmed into symmetrical shape, and already give as mature an effect as if they had been planted for a generation.

The only other part of the estate, in which formal treatment has been used is in the immediate vicinity of the conservatory, where the vegetable and flower gardens are situated. This part of the design remains uncompleted; but what has already been done gives some idea of the possibilities which a combined vegetable and flower garden offer for attractive treatment. In general the flowers are planted in the borders of large beds, the centres of which contain rows of vegetables; and the consequent effect is determined by the fact that, just as the object of the vegetable garden is edible fruit, so the object of the flower garden is bloom. The flowers are raised not to remain undefiled in their allowance of soil, but to be cut—to be cut constantly and in enormous quantities. They are planted, consequently, literally by the acre, and the amount of bloom obtained at any one time is prodigious. The result proves, so it is claimed, that it is possible to plan a large vegetable, fruit and flower garden, in trim paths and symmetrical borders, which can at the same time be economically cultivated.

The roads through the woods are, as I have said, informally

treated, but their informality must not be confused with any lack of intentional effect. The object has been to make a park—not a French park, after the model of the Fontainebleau, but a park which shall keep its native American character. Being a park—by which is intended not a hunting park, a preserve, or a wood-lot, but a woods in which its owner may ride, drive and walk—its original wildness has been somewhat tempered. The woods have been cleared out both for the good of the tall timber and to make them more open and habitable; the sides of the roads have been planted to obtain certain effects; and the whole tract must be compared to a head of hair, which is brushed, if not parted. On the other hand, the planting has been kept thoroughly native and local. There has been no attempt to obtain mere variety of effect by variety of exotic shrubs. The original growth on the tract consisted chiefly of oak and chestnut supplemented by an undergrowth of dogwood and laurel; and the artificial planting has consisted chiefly of thousands of additional laurel and dogwood. Banks of these shrubs line the roads and the uneven contour of the land has offered many opportunities for what will eventually be effective screens and thickets.

The one road whose dressing has been cut on more elaborate lines is the main approach from the lodge up the hill to the house. This road has been planted not only with laurel and dogwood, but at several of the more appropriate places with masses of rhododendrons. Furthermore, it is also distinguished by hedges of Japanese barberry, which, when they obtain their growth, will give it more definition than it obtains at present. Finally it is at the lower end of this road and there only that Mr. Lowell has used some evergreens. The original growth in this vicinity contained a few cedars, which suggested the idea of largely increasing their number, and so enhancing the effect. As the land is comparatively clear in this neighborhood, the cedars are not obscured by any larger vegetation. As one passes through the lodge-gate and drives up the hill they dominate the foreground; and the darker green and prim growth of their foliage makes during the summer months a pleasant contrast with lighter green and more irregular growth of the deciduous trees. In winter, on the other hand, particularly when the snow is on the ground, the cedars will relieve the bleakness of the leafless oaks; and inasmuch as the house is generally occupied until after Christmas, this touch of warmth added to the winter landscape will be grateful as well as interesting.

It will be seen from the foregoing description, as well as from the illustrations, that Mr. Lowell's treatment of "Harbor Hill" has been shaped by one dominating idea. He has sought above all for simplicity and propriety of effect; and in seeking for these simple

effects he has used also only the simplest means. His design is not complicated by many elements. He has used architectural "features" in the vicinity of the house with the same economy that he has used exotic vegetation at the sides of the roads. He has first of all attempted to make his design acceptable by making it fundamentally right; that is, by making it so far as possible the product of its local conditions; and by local conditions is meant in this sense both the lay of the land, the character of the vegetation, and the requirements of the occupants of the house. As the place stands at present, there is very little about it which is merely ornamental; and the ornament which has been used has been used for the purpose of touching up an effect which was already given in the native appearance of the place. Such is the case with the cedar trees along the main road, and with the laurels and dogwood that have been so profusely planted along the other roads. At the same time the attempt to preserve and enhance the natural appearance of the landscape, has not been pushed beyond the limits of propriety. While the woods have been kept natural they have not been kept wild. They have been adapted to human use. So it is with the immediate vicinity of the house. Mr. Lowell has realized that the way to keep the immediate surroundings of a great house simple, is not to make them artificially natural, but to treat them as frankly artificial—as frankly modified to suit the convenience of the inhabitants, their demand for an appropriate framing of the landscape and an effective disposition of the vegetation. Mr. Lowell, that is, with all his preference for the use of simple means in obtaining simple effects, has been formal in his treatment where formality was, if you please, natural. He might, in the opinion of the writer and in consideration of the rather elaborate and pretentious architecture of the house, have used in its immediate vicinity more architectural features, for simplicity of effect can often be wrought—in the greatest works of art has been wrought—by the use of very elaborate means; but it must be remembered that the work on the formal garden, which will be the great ornamental feature of the design, has been as yet scarcely begun, and that consequently any criticism as to the completeness of the effect must be reserved until the landscape architecture of the estate receives its consummation in the pleasure garden. But whatever the ultimate effect may be, Mr. Lowell has undoubtedly supplied to American landscape architects a model of consistency and economy, both of purpose and of means, in the treatment of a large estate which is needed and may well be edifying.

Herbert Croly.



THE RESIDENCE OF EDWIN S. FECHHEIMER.

Winnetka, Ill. Augustus B. Higginson, Architect

A SMALL BUT SPACIOUS HOUSE.

The Residence of Edwin S. Fechheimer, at Winnetka, Ill.

IT is rarely that one finds a small and comparatively inexpensive house which is a meritorius and attractive bit of architectural design, because it is rare that people who want a small and moderate establishment will spend the money necessary to obtain really excellent detail. Excellent detail is very expensive compared to the total cost of a house; but no dwelling can be made individual and interesting without the special and careful designing of the trim, the panelling, the chimney-piece and the like. Consequently, when one finds a small and modest house which is extremely attractive—and attractive because of its sound architecture—one feels like sharing the gratification it occasions with other people. The Fechheimer house, illustrated herewith, is individual and attractive. The reader will see that it is a small frame building, consisting only of one large room, which is ceiled by the slanting timbers of the roof, and an L containing a kitchen and one or two bedrooms below and other bedrooms above. The large room is at once a living-room, dining-room and library; and when one is planning only a small house, it is certainly far more sensible to concentrate the available space in one apartment of ample dimensions and of dignified effect than to divide it into two rooms, neither of which are large enough either for comfort or effective treatment. In the present instance the big room is really spacious. It is high, it is broad and it is wide; and after a meal, the host and his guests can retire to another part of the room without being annoyed by any excessively conspicuous intrusion of the necessary table-clearing. It is not only spacious, however; it is architecturally correct and impressive, and it is at the same time eminently comfortable. The slanting ceiling and the timbers of the roof dominate the room. The lines of these timbers are carried down to the level of the gallery floor by means of strips, while the strongly marked horizontal line made by the gallery is carried around the room by a broad wooden band and a shelf. In the panelling below the vertical lines are still dominant, but much less conspicuously so. The dimensions of the room have enabled the architect to install a big, bold chimney-breast, which is frankly nothing but a chimney and a fireplace, and which is only a mantel piece in so far as it shares the line of the shelf with the walls of the room. The mission furniture harmonizes perfectly with the character of the woodwork, and the color scheme, which is almost of one shade of brown throughout, adds the final touch of propriety. One must congratulate the owner and the architect of the house with securing such a consistent result by the use of such legitimate means.



LIVING-ROOM IN THE FECHHEIMER HOUSE.

Winnetka, Ill. Augustus B. Higginson, Architect.



LIVING-ROOM IN THE FECHHEIMER HOUSE.

Augustus B. Higginson, Architect.

Winnetka, Ill.



LIVING-ROOM IN THE FECHHEIMER HOUSE. Augustus B. Higginson, Architect.

Winnetka, Ill.

"MADE IN FRANCE" ARCHITECTURE.

THE character of American architecture has undergone so many revolutions during the present generation that it is even possible to perform for ourselves the office of posterity, and bring a cold and critical mind to the judgment of things which once seemed beautiful and final, but which the whirling wheel of time has already shown to be scarcely more lasting than "the snows of yester-year."

Tell me, now, in what hidden way is
 Carpenters' Classic, wooden Greek;
What of Eastlake? Where to-day is
 The Italian villa farm-house freak?
 Where for the Neo-Gothic seek?
With Richardson Romanesque, I fear,
 They are gone the way of the sham antique,
For these are the styles of yester-year.

The time is surprisingly short since our architecture was dominated by the personality of one man, Richardson; and architects did their thinking in terms of rough stone walls, high, picturesque roofs, arches with enormous voussoirs, and columns with cushion-shaped capitals. To-day the ideas and principles of the Ecole des Beaux Arts prevail with equal virulence, and quoins, cartouches and bunchy mouldings are the order of the day. *"Project," "ensemble," "esquisse-esquisse," "hors concours,"*—these are the catchwords of the schools, offices, and ateliers from whence emanate architectural confections as Gallic as their prototypes of the Ecole des Beaux Arts itself.

Two questions naturally suggest themselves: Is this latest form assumed by our protean architectural muse only a passing fashion like the others, or is it, in a manner, final? And permanent or ephemeral, does it make for the betterment, or for the debasement of American architecture?

The representatives in this country of the Beaux-Arts idea are organized into a society which numbers among its members many architects of great ability and prominence in their profession, and they have undertaken, at no little cost of time and money to disseminate the principles and methods of work of the Ecole among students of architecture in colleges and offices by the establishment of a travelling scholarship, and by carefully arranged and well-conducted competitions held at frequent intervals, involving the exhibition, criticism, and ranking of the drawings submitted, and the awarding of cash prizes and honorable mentions. The society aims,

in other words, to place freely at the disposal of every ambitious young draughtsman those advantages of education and training which cost its members money, long and arduous preliminary study, the mastery of a foreign tongue, and a more or less protracted residence abroad.

Alexander the Great sent thirty thousand Persian boys to Greek schools and so laid the foundation of the sovereignty of Greek ideas. The Beaux-Arts Society has adopted a similar course to accomplish a similar end; the perpetuation, namely, of the Beaux-Arts tradition in America. It would be difficult to devise a more effective method for the dissemination of a body of ideas than this of impressing them upon the plastic mind of youth.

Several of the leading colleges, also, have Beaux-Arts graduates of distinction in charge of their architectural departments, and the great French school itself is to-day more than ever before the Mecca of American youths dedicated to the study of the art, as is proved by the fact that there are more than twice as many pupils from the United States as from any other country except France itself.

From facts such as these, even more than from the more obvious evidence afforded by those *chic* and brilliant façades, redolent of the Parisian boulevards, which have lately reared themselves along the New York avenues and streets we must conclude that the Beaux-Arts movement is not a purely ephemeral manifestation, since it incarnates not alone in stone and wood and iron, but in the minds of the young men destined to create the architecture of the future.

Such being the case, the second inquiry, whether Beaux-Arts architecture, so called, is a healthy manifestation or the reverse becomes doubly important.

There is much to be said in its favor. Tracing its beginning back to the days of Louis XIV it links the turbulent and mercantile present with the ordered and opulent past. Through it our architecture comes into actual contact with the grand manner of the Renaissance, and so, through "the dark backward and abysm of time" with Rome, with Greece, with Egypt. It stands, however inadequately, for that orderly succession, that continued tradition, for that evolutionary process of selection and survival upon which architecture, more than any of the other arts is seen to depend. Moreover, it is the propaganda of a group of individuals, and not of one man. It is flexible, and accommodates itself readily to the fulfillment of the needs of modern life, being pre-eminently adapted to the expression of the complex, spectacular, and highly organized life of cities. In theory, at least, and in its finest manifestations, it is logical and reasonable, convenience and utility never being sacrificed to effects

of imagined grandeur or picturesqueness, as they were by Richardson and his imitators.

The course of study and the competitive progressive exercises in design prescribed by the school are well calculated to develop a high standard of efficiency in the pupil. The work of the architectural raw recruit is made soldier-like and presentable in a short space of time, and he acquires synthetic habits of thought, and dexterities of execution which forever distinguish him from the self-taught civilian of architecture.

These things are self-evident and generally acknowledged, and any discussion of the true value of the Beaux-Arts training for our young men, and of the influence upon American architecture of the style with which that training is identified, must needs concern itself with issues more obscure and more vital—with the question, for example, whether architecture in so far as it is an art, is not, like the other arts, a thing of feeling and emotion, rather than the product of the reason solely, and whether any school, however excellent, can evoke feeling in a man—whether, indeed, it does not rather destroy it; and even granting that it can evoke feeling, whether it can teach a man to express it in the manner peculiar to himself alone. "Professional schools," says Tolstoy, "produce an hypocrisy of art." What is architecture, in the last analysis, but the manifestation in space—by means of ponderable materials and in three dimensions—of a nation's life and inherent character? This being so, do not those borrowed and inherited forms which constitute so large a part of the architectural language of the Beaux-Arts votaries, however appropriate and indigenous they may be on French soil, become meaningless and exotic when applied to constructions peculiar to America and American life—the skyscraper, for example, and the country house which is neither a villa nor a chateau? Is this not an hypocrisy of art? Why should we constrain ourselves to speak bad French on Broadway? Can the simpering architectural masks which line the boulevards of Paris, or anything remotely resembling them adequately objectify the idea incarnate in the many storied temples of Mammon which rear themselves above the smoke and dust and noise of our volcanic, titanically laboring cities? Can imitations of the chateaux of French nobles, the pleasure houses of kings' mistresses, the villas of cardinals and grand-dukes, however cleverly equipped with electric lights and sanitary plumbing, ever be made fit and expressive dwellings for the self-made Americans who spend by preference the greater number of their waking hours in the hurly-burly of business—cliff-dwellers of the city canyons, waging bloodless but deadly warfare against one another?

Yet architecture is never, in the last analysis, false to the con-

ditions which gave it birth. This imitation of European architecture indicates, and indicates truly, a corresponding imitation, on the part of a certain class, of European modes of life. The stream of our American civilization tends more and more to divide itself into two currents, the one aristocratic: an aping of European society, with its forms, its class distinctions, its luxury, its lavishness, and all the attendant complications of the machinery of living; the other democratic: a reversion to simplicity and sincerity of living. As Mr. Sullivan says, "We are at that transitional moment in our national life wherein we tremble evenly between decay and evolution, and our architecture, with strange fidelity, reflects this equipoise." It so happens that the expression of the aristocratic ideal Beaux-Arts architecture stand inexorably committed. It is a rose which blooms nowhere so rankly as underneath the fructifying sun of Wall Street. The millionaire has marked it for his own. The vitality of much money animates it. The democratic ideal finds expression in the work of a few men in Boston, in Philadelphia, in Chicago—work essentially intimate and individual in character, having few qualities in common except the abjuring of the gradiose.

Money is a most potent and necessary factor in architectural evolution, for architecture is the efflorescence, as it were, of the superfluous wealth of a community or of a nation. It is not a good thing, however, when this superfluous wealth is poured out, nor for the whole people, or by them, but by and for the rich class, and when the tastes and habits of this class are alone catered to.

It is precisely because we are rich that we may hope for the next world-important development of the art of architecture to take place here, rather than in Europe, saddled as it is with an expensive and unproductive military system, and laboring under the added burden of over-population; enslaved, too, in its architectural imaginings, by the very perfections of those monuments left by its vanished systems and civilizations, in which the pursuit of beauty was as active and ardent as the pursuit of scientific knowledge is to-day. Up to the advent, a few years ago, of L'Art Nouveau modern European architecture consisted of the reassembling in new combinations of the outworn classic forms, modified, perhaps, but modified by the whim of the designer rather than by structural necessity,or perchance distorted into those degenerate Baroque like shapes reminiscent of nothing so much as the creations of an ambitious confectioner, known as "Modern French." In this exercise the Ecole des Beaux-Arts undoubtedly renders its pupils proficient, and in monumental work and buildings of the accepted and conventional type the results are sufficiently pleasing to the eye, at least. The ingenuity of the American architect of Beaux-Arts training is severely taxed, however, when it comes to adapting the

school canons of design to certain unprecedented structures born of American needs and embodying new methods of construction. That he sometimes succeeds so well is rather a triumph of his ingenuity than of that innate perception of the fitness of things so essential to good architecture. His failure, if failure it may be called, is the more to be deplored for the reason that these unprecedented constructions are the very ones in which the national genius attains its intensest objectification. If he only knew it, it were better to cut the Gordian knot than laboriously to unite it, but this seems equally beyond his comprehension and his power. Hypnotized by his school training he willingly bows to a yoke which is not his by inheritance—one which some of the most advanced European architects are themselves striving to throw off. Herein he is false alike to the spirit of his native country, to which he fails to give adequate utterance, and to his art, which he fails to enrich and vitalize by bringing it into organic relation to current methods of construction.

I characterized the Beaux-Arts training as a yoke, and so it is, but just as the stalled ox leads a more comfortable and less precarious life than its free-roaming brother, so the loyal disciple of the school is usually better off than he who, alive to the inadequacy of the architectural language which the school teaches, essays to formulate another, for it is in the nature of the school—of any school—that it makes easy the way of the man of mediocre talent by guarding his feet from the pitfalls which beset the path of the innovator. It encourages its disciples to lie down in the green pastures of the past, tilled by the labors of those who have gone before; it leads him beside the still waters of things accredited and accepted. The schoolman has the conservative majority always on his side. His work may not be wonderfully good, but it need never be wholly bad, and it is almost always fashionable. The innovator, on the other hand, cannot conceal the poverty or vulgarity of his thought behind a borrowed mask; he must create, and even though he be a genius, and invents new forms of beauty, he has still the natural and instinctive conservatism of public taste and opinion to overcome, and though successful also in this his practice must necessarily be restricted to the amount of work he can himself attend to; he cannot put into operation that system of designing by card catalogue, as it were, which is so successfully practiced in offices dominated by the Beaux-Arts idea—a system whereby the various details of a building are designed, or more often copied out of a book, by various hands, and without serious loss to the homogeneity of the whole.

The strictly commercial basis upon which a successful architectural practice is conducted nowadays, and the great volume of

work turned out by a single office are factors favorable to the dissemination of Beaux-Arts methods, because it creates a demand for men trained in "established" architecture who are able and willing to merge their own individualities in the larger individuality of the firm for which they work, in the same way as a newspaper writer loses his identity in his paper.

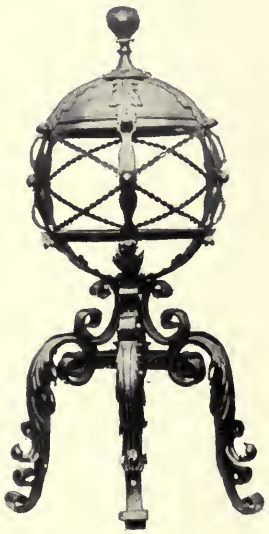
Nowhere in the world are building operations undertaken on so vast a scale as here in America, and nowhere is there so much money spent, and so much popular interest manifested in building. There are sufficient numbers of men of distinguished talent in the profession to render our architecture, under these circumstances, illustrious in the history of the world. False ideals, lack of initiative, and a misplaced conservatism, however, delay this consummation. It has been said that "in the mind-history of every land there is a time when slavish imitation is inculcated as a duty, and novelty regarded as a crime," and it would seem as though we were passing through that phase of our development in the field of architecture, at least. The only American architect of eminence who by precept and example stands for originality—not eccentricity, but invention wedded to reason—is a prophet not without honor save in his own country if we except the small circle of his disciples and admirers. His is personality so positive and a talent so unique that I may be pardoned for mentioning him by name. I refer to Mr. Louis Sullivan of Chicago. He stands so uncompromisingly for the democratic, as opposed to the aristocratic idea, for naturalism as opposed to scholasticism, for invention as opposed to imitation, that in his work and in his propaganda he may be said to epitomize and embody the anti-Beaux-Arts spirit, as that spirit has come to be understood from its interpreters in this country. By a curious paradox Mr. Sullivan received his training at the Beaux-Arts, and acknowledges a great indebtedness to the school. He purports to embody in all his work its essential teachings, and the best foreign critics take this view. To them Mr. Sullivan is the foremost, the only distinctively American architect, but the Beaux-Arts votaries in this country are far from sharing this opinion of him. To them he is rather an anarch of art, a brilliant iconoclast, an individualist, as was Richardson, with an influence less subversive only because it is less widespread. He, on his part, is scornful of them, and his caustic pen is never more bitter than when assailing their pretensions. "The recent American students," he says, "return from school equipped not with a knowledge of first principles, but merely with a collection of clever fads and tricks. How much of this is due to be charged to the school, and how much to the material and opportunist temperament of the average American student I am not prepared to say."

Here is an apparently irreconcilable antagonism between men of the same country, the same profession, the same training, significant of the confusion of ideas now prevailing on this subject. No marshalling of arguments can avail in predicting which way the cat will jump—what form our architecture will ultimately assume, but it is evidence that there is a segregation of forces into two opposite camps, the one represented by what I may call the New York group, in which the Beaux-Arts spirit is dominant, and the other by the Chicago group, inspired by Mr. Sullivan. Just now the former is in the ascendant, but there is a vital and germinative quality in Mr. Sullivan's propaganda, a freshness, an enthusiasm, appealing to the spirit of youth. I know nothing more inspiring to the American architectural student than his "Kindergarten Chats" notwithstanding their prolixity, their errors of taste, their spirit of intolerence and bad-temper, and Mr. Sullivan's office buildings are eloquent object lessons in original beauty, sincerity, and directness —lessons which are being pondered in unexpected quarters as the altered character of much of the recent work in this field shows.

Although these two factions are at odds just now, it is to be hoped, and not impossible to be imagined that the coming generation of architects may achieve a larger synthesis in which the two divergent ideals may be reconciled to their mutual enrichment; the devotees of sheer originality learning from the schoolmen that temperance and restrait and refined feeling for beauty which the study of classic architecture inculcates and that masterly way of handling a given problem which the solution of many imaginary projects teaches; and the schoolmen being inspired in turn to armore constant effort at creation and invention.

As a final work it may be said that the demand for a school training, and more particularly for a Beaux-Arts training for American architects and draughtsmen has arisen in answer to a very real need and has therefore a validity which cannot be argued or ridiculed away. Our sorry experiments at archaic architecture and our sorrier essays in originality have impressed the more enlightened with the necessary for some form of official architecture, as it may be called, for important public buildings at least, which, however little inspired, may at least not offend the sight, and the Beaux-Arts movement has helped more than anything else to such a consummation. Our government buildings, libraries and schools built in recent years, though vitalized by no spirit of new beauty compare favorably with those of any other country and are infinitely better than the dread abortions of the pre-Centennial period. However little some of us may like the net visible result of the Beaux-Arts movement, we should be grateful for what it has saved us from. Two things it has at least accomplished: it has taught our archi-

tects the necessity of *ensemble* planning, and it has immeasurably raised the standard of draughtsmanship. The one discouraging factor of the whole matter is that the Beaux-Arts votaries are attempting to make what should be regarded as transitory final; their one idea seems to be to continue to give us what they have been giving "only more so." Their ideal is still the old world ideal, they do not seem to seek for a valid meaning in all they do. They seem to regard it as unthinkable that to the future historian of our architectural evolution the Beaux-Arts movement of to-day may well appear the infatuation of a small circle attempting to make the building impulse of a great nation revolve upon the frail axis of a foreign school. *Claude Bragdon.*



ARCHITECTURAL REFINEMENTS IN FRENCH CATHEDRALS.

THIRD PAPER.*

Notre-Dame.

THE observations to be described in this paper and in its continuation in the January Number, were made mainly during the month of September, 1903. They are verified by photographs, in which the perpendiculars are represented by plumb-lines, and in which the dimensions are indicated by the inclusion of a surveyor's rod in the picture.

The entire number of negatives made in Notre-Dame to illustrate these observations was eighty-five. Sixty-three of these were interiors.

Of these photographs, forty-five have been enlarged to the dimensions of 25 in. by 35 in., or 18 in. by 22 in., and twenty-eight of them have the larger dimensions. They are now on public exhibition in the Brooklyn Museum. They are catalogued in a printed commentary, which has been published as a Museum Memoir.† In this Memoir, which appeared in April, 1904, the facts which are now to be described in a more categorical and more detailed manner were very briefly made public in print for the first time.

List of Illustrations.

Fig. 1 is a rough sketch of the north side of the nave of Notre-Dame, between the transept and the organ loft, showing arrangements which also appear on the south side. Figs. 2, 3 and 4 are photographic details relating to portions of this sketch, showing accurately the features which are exaggerated by it.

In the Brooklyn Museum exhibit there are fifteen photographs showing in greater detail the special facts which are in question in this limited number of illustrations, all but two of which are 2 ft. by 3 ft. each, inside measure.

Figs. 5 and 6 are reproductions of previously published surveys of the Pisa Cathedral, showing arrangements similar to those of Notre-Dame.

*Continued from the November Number. The illustrations of these papers are from photographs of the Brooklyn Museum Series of 1903.

†Memoirs of Art and Archæology, No. 4: "Vertical Curves and other Architectural Refinements in the Gothic Cathedrals of Northern France and in early Byzantine Churches at Constantinople." (Macmillan.)

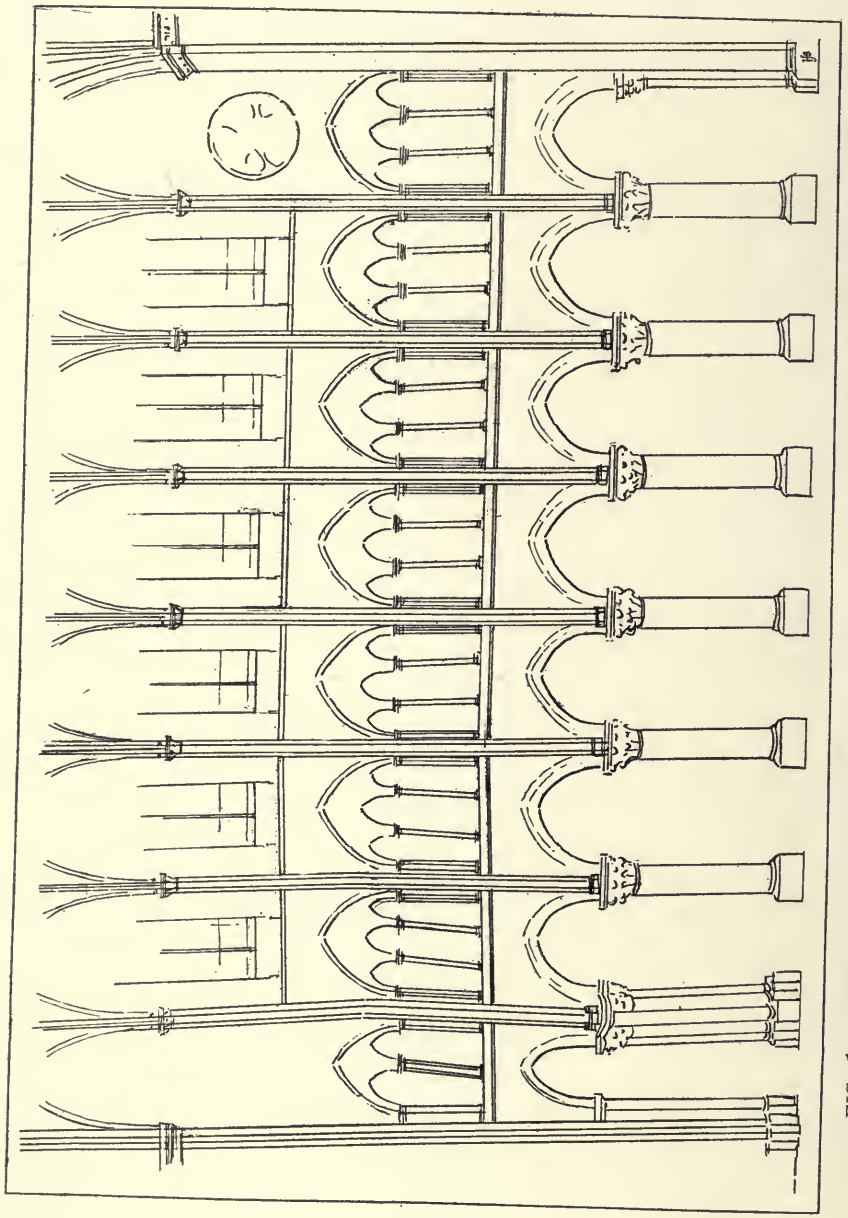


FIG. 1.—ELEVATION, IN EXAGGERATED DRAWING, OF THE NORTH SIDE OF NOTRE-DAME.

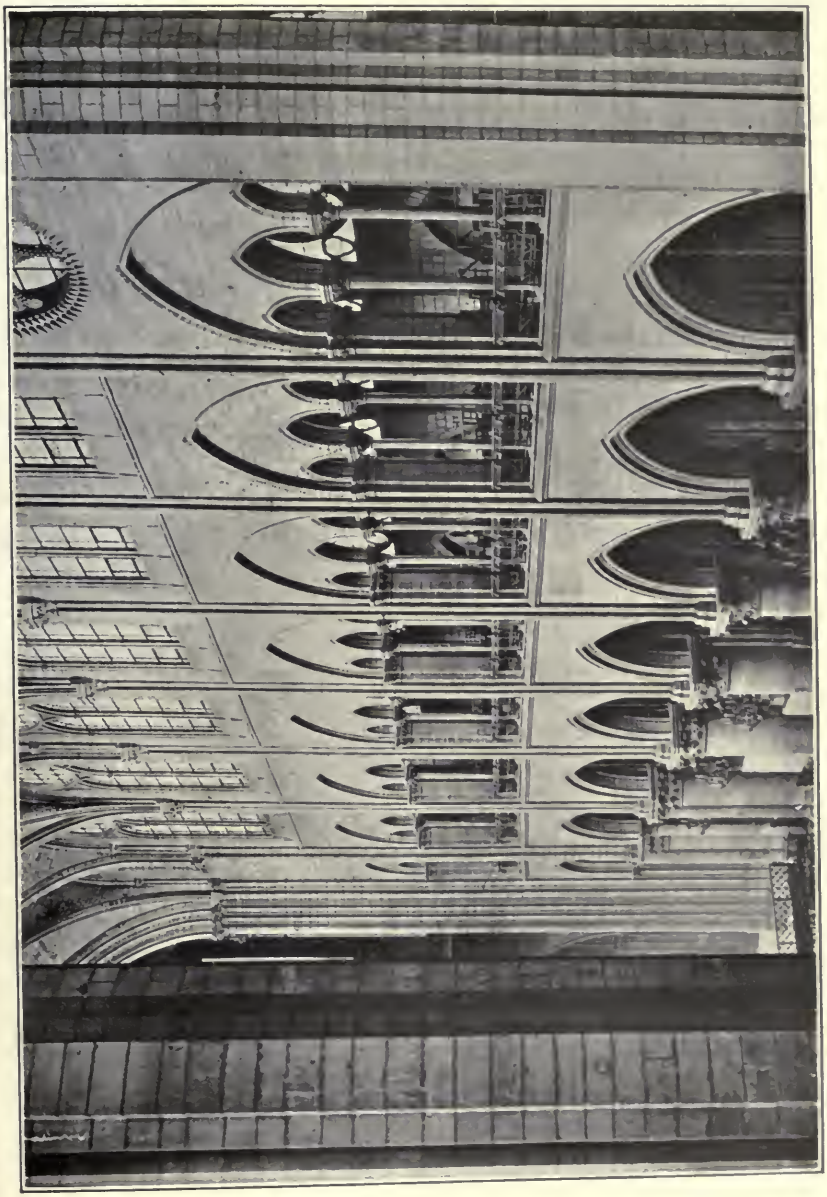


FIG. 2.—NOTRE-DAME. LEFT (NORTH) GALLERY, FROM THE CHOIR.



FIG. 3.—SOUTH GALLERY, NOTRE-DAME. SEVENTH BAY, COUNTING FROM THE TRANSEPT.

The Gallery Bends in Elevation.

We will first devote attention to the gallery bends in elevation, one of which is roughly shown in Fig. 1 and accurately shown in Fig. 2. This bend is found in both galleries in the same relative position, and having the same general character, with measurements which are practically identical. In Fig. 3 its rise is shown for three bays of the (farther) north side and for one bay of the (near) south side. Fig. 4 also shows the rise of the parapet for one bay of the (near) south side, next the organ loft.

In this picture the cutting and fitting of the masonry, by which the rise is effected, can also be seen quite clearly on the farther side of the nave. In the Brooklyn enlargement from the same negative, and in other enlargements, the cutting and fitting of each individual block of masonry are shown with the greatest clearness.

The amount of the gallery bends in elevation in Notre-Dame was tested by level, in the south gallery. In the north gallery the stationary benches, which have been placed there for use on ceremonial occasions, made the use of a level impossible, and the measurement was taken by plumbing to the pavement below at three points; viz., at the bend, and at the two extremities of the gallery. As I did not take the level of the pavement below, the measurement for the north gallery bend must be considered as an approximation, but the best which is possible at present.

According to these measurements, the north gallery parapet rises 0.95 (or 11½ inches) in the first three bays, counting from the organ loft. From that point it bends abruptly to an approximate level, but rises .08 in the remaining five bays (assuming the pavement below to be accurately level).

By level, the south gallery parapet rises 0.85 (or 10¼ inches) in the first three bays, and falls 0.28, toward the transept, in the remaining five bays. The gallery floors correspond to the parapets in general change of level.

On the north side the capitals of the triforium, and the window-sills of the triforium, follow the same bend, but I cannot observe it in the sills of the clerestory windows or in the string-course under them.

On the south side the bend is repeated in the line of capitals of the triforium, in the triforium window-sills, in the sills of the clerestory windows and in the string-course under them. The bend in this clerestory string-course and in the line of window-sills in the clerestory has been entered by our artist in the rough sketch, Fig. 1, in order to economize cuts; although it is really found on the other side of the church.

The verification of the facts stated regarding the clerestory win-

dows on the south side, and for the corresponding string-course, may be accomplished by a trip to Brooklyn, where the visitor will find, not only a 2 by 3 ft. counterpart to Fig. 2, for the south side, but also a 2 by 3 ft. detail for the bend in the string-course of the south clerestory wall (No. 94 of the Catalogue).

The bends described are wholly invisible from the pavement of Notre-Dame. From this position they are discounted insensibly into the ordinary effects of perspective. That they very much add to these effects is beyond dispute. In the galleries of Notre-Dame the bends are also easily overlooked, and here again they are naturally discounted into optical effects.

No. 75 of the Brooklyn Museum exhibit illustrates the tendency of the eye to discount these deflections. When the picture is viewed in the normal position one does not notice any change of direction in the line of sills of the triforium windows. If the picture is turned sideways, and the line of window-sills is sighted by holding the view in a diagonal position, the very pronounced bend is easily seen.

That these deflections are not due to accidental movement of the masonry may be gathered from the inspection of the enlargements in Brooklyn, which show the cutting and fitting of the masonry, all the blocks of which, under the parapets, can be individually seen in the photographs. That they are not due to masonry movements may farther be gathered from their close uniformity on the two opposite sides of the church and from the mentioned fact that they are found in a series of repetitions, including on the south side the clerestory string-course and the alignment of the window-sills.

Even in the half-tone prints of this article (Figs. 3 and 4), the individual blocks of masonry may be fairly well distinguished. In the numerous enlarged details of the Brooklyn Museum exhibit, the great magnitude of the pictures and the sharp definition of their details furnish an opportunity to trace the entire process of the construction of these bends, not only beneath the parapets, but also in the clerestory walls, up to the height of the vaulting-shaft capitals; including about one-half the height of the clerestory windows.

Nothing similar to these gallery bends has been noticed in other French cathedrals as far as visited.*

Their exact counterparts, as regards system, occur at Pisa.

Fig. 5 represents a survey, made under my direction in 1895, of the north gallery in the Pisa Cathedral. The north parapet rises from the façade 0.78 for the first three bays. It falls 0.93 toward the transept in the next seven bays.

*A complete list of these cathedrals will be found in Museum Memoir No. 4.

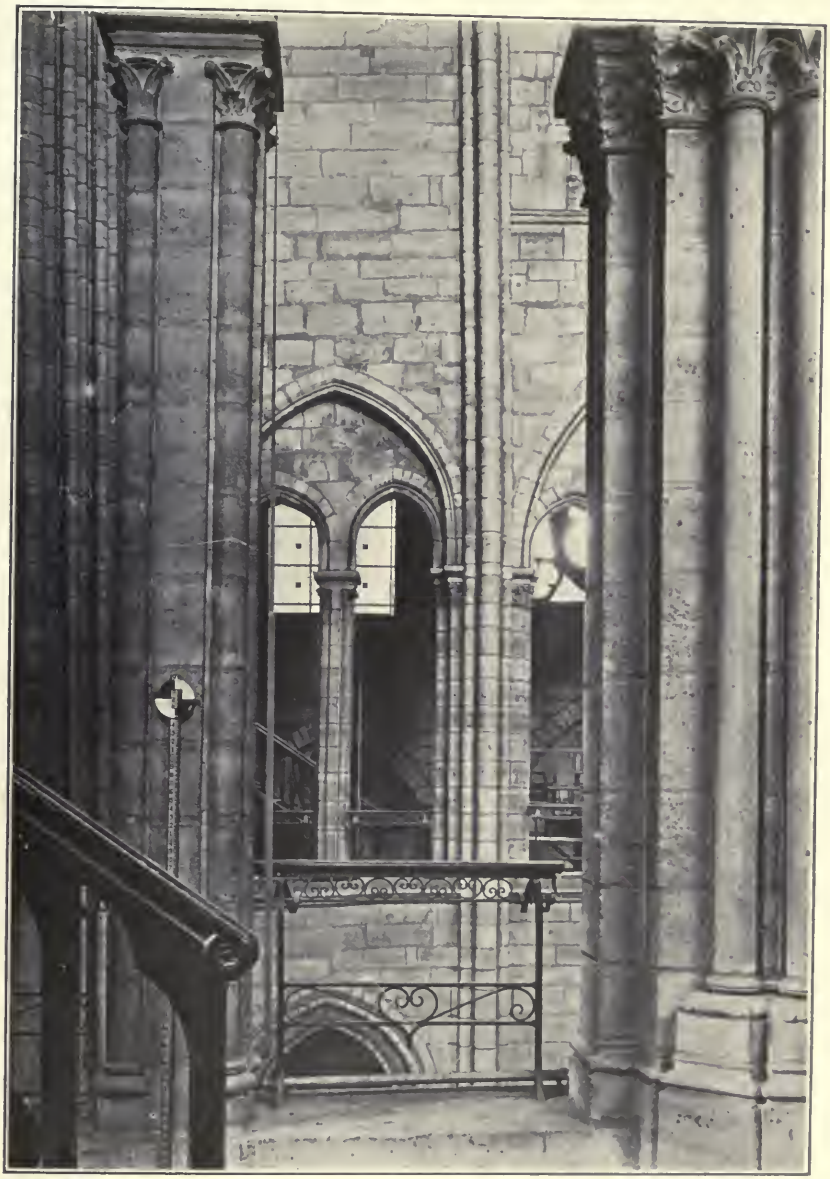


FIG. 4.—SOUTH GALLERY, NOTRE-DAME. EIGHTH BAY, COUNTING FROM THE TRANSEPT.

Fig. 6 is a survey of the south gallery at Pisa. The south parapet rises from the façade 0.83, for the first three bays. It falls 0.83, toward the transept, in the next seven bays. The Pisa bends were originally published in my paper on "Constructive Asymmetry in Mediæval Italian Churches," in the Architectural Record for March, 1897, Vol. VI., No. 3. They have been verified as constructive by Signor Annibale Messerini, engineering architect in charge of the cathedral in 1901, and his certificate has been published.*

The Triforium Columns.

We will now return to Fig. 1, in order to observe a second feature which is indicated in its exaggerated drawing; viz., that on both sides of the church the triforium columns (as distinct from the triforium piers, which are connected with the vaulting-shafts) lean together toward a common point, which is the apex of the bend.

For the first three bays, on both sides of the church (counting from the organ gallery), the triforium columns lean east (to the right). For the remaining five bays, on both sides of the church, these columns lean west (to the left).

On the other hand (see Fig. 1), the piers and vaulting-shafts lean uniformly west (to the left) from transept to façade; but they make a concession to the opposing leans of the triforium columns in the first two bays, as far as the corresponding height is concerned, and beginning lower down. They compromise, so to speak, with the opposing lean, and then return to their own system.

This compromise bend, which is found on both sides of the church (but which is most strongly defined on the north side), is roughly shown in Fig. 1. It is accurately shown in Fig. 4. In Fig. 3 we see the columns, from which plumb-lines are suspended, leaning east (to the right), and we see the vaulting-shafts, across the nave, leaning west (to the left). In Fig. 4, the westward pitch of the great pier next the organ loft is well shown on the extreme left, and in the centre of the picture we note the return bend of the vaulting-shart to the left (westward), in the clerestory wall; whereas, for the height of the triforium arcade its inclination westward (only 0.03 in 10½ ft.) does not contrast abruptly with that of

*Architectural Record; Vol. XII., No. 6, Nov., 1902; Am. Journal of Archæology, New Series, Vol. VI., No. 2; Museum Memoirs, No. 1.

The irregular heights of the columns in the nave are due to their heterogeneous origin; but, although the columns of the galleries are also of irregular size, the gallery piers have been systematically constructed in varying heights, which form a bend on the south side and a gradually descending line on the north side. For the farther encouragement of sceptics, it may be added that the string-courses on the exterior sides of the Pisa Cathedral, which correspond to the general level of these gallery parapets, do not bend at all. They fall at an even rate from the façade toward the transept, to the extent of 2 ft. This proves that the interior deflections were not caused by some change of plan during construction, such as the lengthening of the church might have involved.

the adjacent column, leaning east 0.14 ft. Lower down and beginning at the base of the pier the westward lean is very pronounced; at the rate of 0.37 in 20 ft.; and this is also the rate of pitch above the triforium arcade (the view of the pier and vaulting-shaft from the pavement up to the parapet is shown by No. 97 of the Brooklyn exhibit).

In Brooklyn there is a series of photographs similar to Fig. 3, each 2 ft. by 3 ft. in size, one for each individual bay of the south gallery, looking through it to the vaulting-shafts and bays of the opposite side of the church. There are also four enlargements, looking from the north side to the south side of the church, showing that the facts are uniform for both sides, as regards the vaulting-shafts.

It appears, from the compromise bend in the vaulting-shafts, which would otherwise conflict too distinctly in their westward inclination with the eastward leans of the triforium columns, that two distinct lateral systems of optical or asymmetrical arrangement have been employed in the nave of Notre-Dame, which had to be harmonized in this manner, in order to avoid an abrupt contrast of vertical lines, leaning in opposite directions, in the bays next the organ loft.

It also seems evident that the inclinations of the triforium columns towards the apex of the bends are connected with the system of these bends, and it may be presumed that the inclinations were intended to accent and develop their effect, as seen from the level of the pavement below.

Vaulting-Shafts of the Nave.

The westward leans of the vaulting-shafts, including the piers, from the pavement up, which are slightly exaggerated in Fig. 1, are a separate affair, and belong to a distinct system, because they are uniform in the direction of their inclination, from transept to façade. As a tentative suggestion regarding the purpose of this arrangement, it may be noticed that its optical effect, in the direction from the main entrance to the choir, would be to increase the appearance of the widening which is described in the November paper. It would, therefore, be a plausible, tentative explanation that, over and beyond the slight actual widening in the clerestory of the nave, this expedient had been employed as preferable to a more pronounced actual widening, which might have been considered as going beyond the limits of constructive safety. It is a possible objection to this suggestion that there would be an inverse result in the opposite direction, but there are many mediæval churches in which perspective illusions have been arranged in the

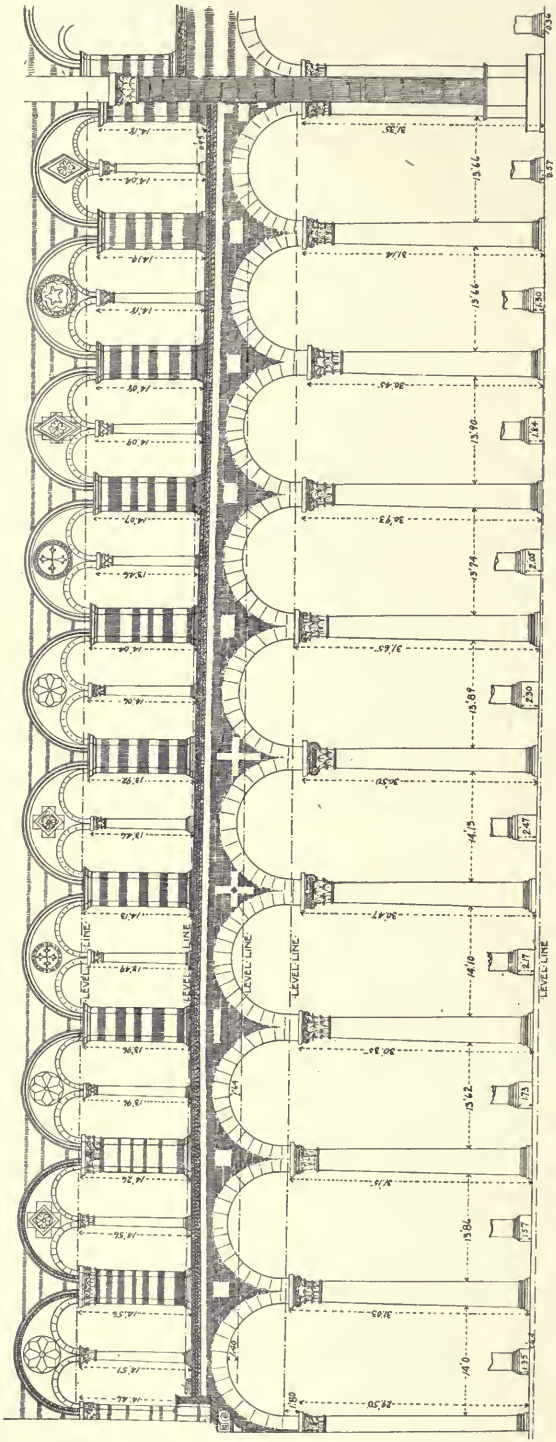


FIG. 5.—PISA CATHEDRAL. SURVEY OF THE NORTH GALLERY BEND IN ELEVATION.

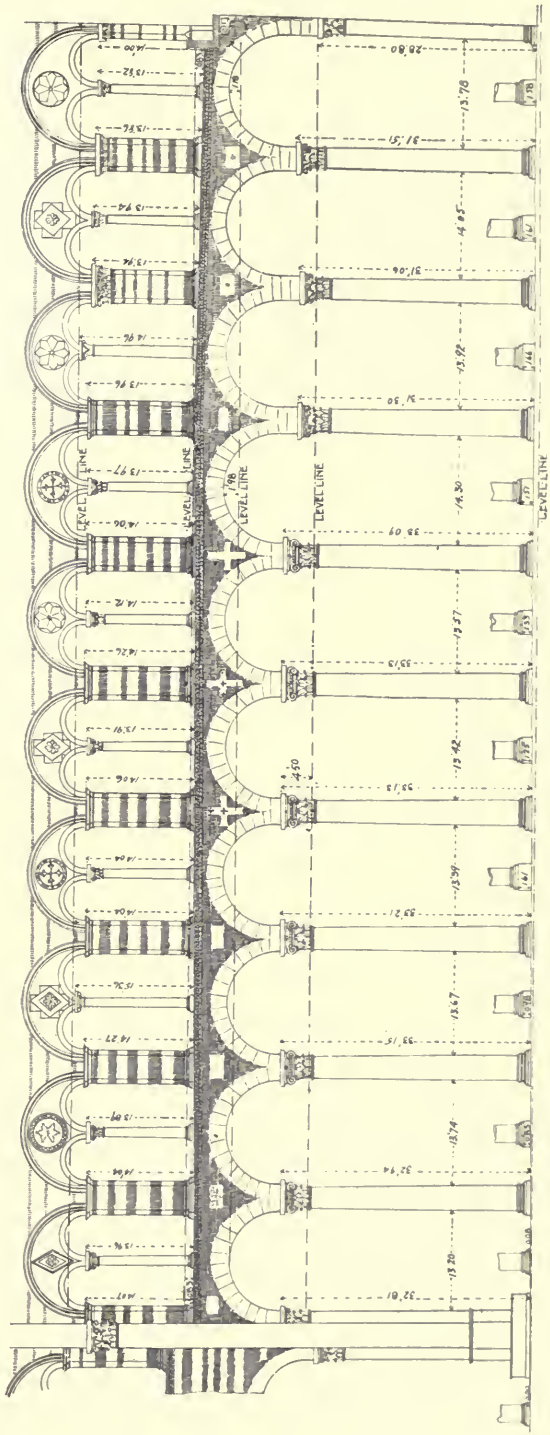


FIG 6.—PISA CATHEDRAL. SURVEY OF THE SOUTH GALLERY BEND IN ELEVATION.

direction from entrance to choir, which work inversely in the opposite direction. In a Catholic church the eyes of the worshipper and very often those of the spectator are mainly turned toward the choir. Effects from the direction of the main entrance, or during worship, may have been considered the most important.

For the moment the facts appear to be more interesting and curious than any possible theory about them can be, and the essential fact is, at present, that this very remarkable asymmetric construction exists in Notre-Dame.

Plumb Measurements for the Triforium Columns.

The plumb-lines which are seen in Figs. 3 and 4 were actually broad tapes, because this width was considered desirable, as a means to their prominence in the photograph. For the measurements which follow, a light cord (10½ ft. in length) and a heavy plumb-bob were used. The object of quoting these measurements is to exhibit that uniformity of arrangement which demonstrates the existence of a definite and carefully conceived plan, whatever that plan may have been.

In the following list of plumb measurements they are quoted by bays, counting the "first" bay as the one nearest the transept and the "eighth" bay as the one next the organ loft. In this list only the triforium columns are mentioned, two for each bay; the piers of the triforium, which are connected with the vaulting-shafts, being omitted. These uniformly lean west, according to measurements which have been published in Museum Memoir No. 4.

Plumbs for the Triforium Columns.

North Gallery.		South Gallery.
.05W	1st Bay	.03W
.10W		.04W
.10W	2nd Bay	.07W
.12W		.14W
.06W	3d Bay	.14W
.11W		.15W
.06W	4th Bay	.13W
.07W		.13W
.04W	5th Bay	.13W
.05W		.11W
.04E	6th Bay	.20E
.00		.03E
.18E	7th Bay	.25E
.24E		.12E
.14E	8th Bay	.10E

It is understood that the facts represented by these measurements are shown in an easily visible and rough approximation in Fig. 1, and that they are accurately shown for two bays, viz., the

eighth and seventh, by Fig. 3 and Fig. 4. It is also to be understood that the facts are accurately shown for every individual bay by photographs, of size 2 by 3 feet, in the Brooklyn Museum.

It is evident that the correspondences in the direction of these leans, and in their change of direction, on the two sides of the church, as related to the apex of the bend on both sides of the church, is such as to make the suggestion of accident or carelessness too improbable for consideration. To argue this point would be to insult the intelligence of the reader.

As regards the suggestion of acidental masonry movement I ought, however, to remember that such theories are occasionally held by persons who evidently have not grasped all the facts which are involved in the given problem. Let such persons understand here what is the problem which *their* theory of the unlimited plasticity of cathedral masonry has to grapple with. In the "sixth," "seventh" and "eighth" bays all the columns lean east, but in these same bays all the piers lean west (individual measurements for the piers in Memoir No. 4) and this holds of both sides of the church. For instance, the column of the eighth bay, north gallery, which is mentioned in the list as leaning east 0.14 in 10½ ft., is only 3½ ft. distant from a pier which leans west 0.20 in 10½ ft.

Thus we are led in the next place to describe more carefully the westward leans of the gallery piers and of the vaulting-shafts of which they are portions.

Westward Leans of the Vaulting-Shafts.

The vaulting-shafts of Notre-Dame are best shown in their general relation to the architecture of the church by Fig. 2. In this cathedral they rest on the capitals of the piers and rise from them to the ribs of the vaulting. Their westward leans are also found in the piers, and are, therefore, continuous from pavement to vaulting, as roughly shown by Fig. 1.

The piers of the nave, as distinct from the vaulting-shafts, will presently be considered, but, for the moment, our attention may be devoted to the vaulting-shafts alone, and for the reason that their arrangement carries with it its own proof of constructive intention. Masonry is neither putty nor india-rubber, and the vaulting-shafts, as distinct from the piers below them, are, for large portions of their length, fixtures in a wall, on the surface of which they are simulative and decorative supports, which are not exposed to any east and west (lateral) movement. It therefore follows that eighteen of them (nine on each side of the church) could not all lean in one direction in lines rising from the pier capitals to the vaulting, except by a constructive intention which must have had a fixed purpose of some kind or other.

The question, for the moment, is therefore—do these vaulting-shafts actually lean as they are asserted to lean, and as they are represented to lean, in exaggerated drawing, by Fig. 1?

The answer is furnished in the Brooklyn Museum by eleven photographs, in which the facts can be tested by plumb-lines; nine of these photographs being 2 by 3 feet in dimension. Of these photographs two are shown in the inconspicuous size which is necessary for the page illustrations of this article, by Figs. 3 and 4. In these two pictures the leans of the vaulting-shafts on the south side of the nave are to be tested by the plumb-lines which are hung from the columns in the foreground. Note, among others, the great vaulting-shaft on the extreme left of Fig. 4.

The total amount of the westward leans for piers and vaulting-shafts near the transept and in the center of the nave would appear to be only about 6 or 8 inches (minimum estimate), but it must be remembered that in optical appearance this would add considerably to the widening effect of the nave, when looking toward the choir. Near the entrance the pitch of the inclination increases greatly, especially in the great piers next the organ loft (as shown in Figs. 1, 3, 4). These belong to the tower constructions, and facts of so remarkable a character are here in question that a separate and special account of them must be given in the following article. In this following paper it will be shown that the lower façade leans forward by construction and that the buttresses of the tower constructions follow this lean and then curve to the perpendicular, so that the towers themselves are perpendicular. It will then appear that the leans, which have just been mentioned, of the great piers at the organ loft, which also curve toward the perpendicular, are parallel with those of the exterior tower constructions, of which they form the interior angle supports.

As plumbed from the pavement the piers in question lean 0.44 in 20 ft. As plumbed in the gallery they lean respectively (south) 0.14, and (north) 0.20, in a height of 10½ ft. That the entire amount of lean is about 18 inches is apparent from the following considerations, although these piers have not been plumbed for the entire height and this would not be an easy matter. The height from bases to capitals is close to 80 ft. The pitch is visibly uniform, aside from a curve toward the perpendicular near the top. Since the lean averages about 0.20 in 10 ft., as tested both in the gallery and from the pavement, it appears that 18 inches is a conservative estimate for the entire amount.

Aside from the demonstrations to be offered in the next paper that the leans and bends of the facade and towers cannot be accounted for by settlement, it now remains to be shown that settle-

ment cannot account for the leans of the piers of the tower constructions.

If these piers went over by a settlement of the west front, it was before the weight of the towers was placed upon them, for the towers are perpendicular. Pending publication of the next paper this fact may be verified by inspection of the photographs in Brooklyn. An inspection of the masonry of the clerestory walls will, show, however, that no settlement has occurred. This inspection is verified by photographs in which every block of masonry can be separately studied. If the piers went over 18 inches, there must have been fissures to the amount of 18 inches and the subsequent repairs by which these fissures were filled in would appear in the walls. No such repairs are to be found. On the contrary the intact construction by which the masonry was inclined downward in parallel courses, with the slope at right angles to the leaning piers, can even be studied in the small dimensions of Fig. 3. Note the downward slope of the course of masonry which runs directly over the two triforium arcades on the right in Fig. 3. It may then be suggested that a settlement began at the fourth bay. There are three separate proofs that it did not.

(a) In Fig. 3 a magnifying glass will show more clearly, what can fairly well be seen by the naked eye, that the course of masonry under the fillet which marks the clerestory window sills is cut in gradually narrowing width so as to level and equalize the slope below. In the large photograph of the Brooklyn exhibit which corresponds to Fig. 3, this fact is conspicuous. In the large photograph of the Brooklyn exhibit which joins with Fig. 3 (No. 88), the construction by which all the masonry courses are brought to a level is clearly visible. Similar constructive arrangements of the masonry can be studied in the Brooklyn photographs of the south clerestory walls (Nos. 92-95), with the difference that on this side the fillet is bent constructively. According to the slopes of the masonry courses on both sides of the church, if a settlement took place at all it must have begun at the fourth bay from the organ loft (fifth from the transept), and at this point therefore the greatest fissures must have been filled in. But exactly at this point is found the evidence for the deliberate construction of a bend in the masonry courses.

(b) If the piers of the tower constructions went over by a settlement beginning at the fourth (gallery) bay and indicated by the bend in the gallery parapet (Figs. 1, 2, 3) then the capitals of the nave piers would repeat this bend. On the contrary they are level (Fig. 2).

(c) If the piers of the tower constructions went over by a settle-

ment beginning at the bend of the fourth (gallery) bay, then the pavement and the bases of the piers would slope down to the west to an amount corresponding to the amount of the bend. That this is not the case is shown by the plumb to the pavement from the north gallery.

Before abandoning the subject of the downward slopes of the masonry courses in the "sixth," "seventh" and "eighth" bays (next the organ loft) it should be noted that these slopes and that of the gallery parapet all meet the lines of the great piers leaning west, at a right angle (see Fig. 3). It is this arrangement which makes it difficult to detect or estimate their leans. The bend at the fourth bay is easily overlooked because it is an obliquity which corresponds to the ordinary facts of vision. But if the bend and the slope are not realized by the eye then the leaning piers, which are normal in relation to them, must also escape detection. The north and south walls of the Pisa Cathedral have similar bends in their masonry, with similar relation to the lean of the lower portion of the Pisa façade, and it may not be amiss to remind the reader that the demonstration which has been accepted by the expert in charge of the Pisa Cathedral, and other experts, in Italy, for the constructive lean of the Pisa façade is closely analogous to that which is now offered for the piers of the tower constructions in Notre-Dame.

An Answer to Criticisms of the "Builder."

In his issue of Aug. 13th, the Editor of the London "Builder" has made some adverse criticism on my article in the August Number, and has quoted Peterborough Cathedral as an instance showing that a vaulting may spread 2 ft. without collapsing. He says: "At Peterborough, as we all know, the piers have moved more than 2 ft. out of perpendicular, but the vault did not actually fall in, although it was in a very precarious state before the recent restoration."

"As the nave of Peterborough is not vaulted, and never was, Mr. Statham's instance appears to be poorly chosen, and especially so when we consider Mr. G. L. Pearson's Report on the West Front of Peterborough Cathedral, which he repaired.

We extract the following passage from Mr. Pearson's report:*

"Careful plumbing has determined that the detached clustered columns [of the west front], with the part up to the string-course above them, lean out to the extent of fully 2 ft., and that the three gable-ends have an inclination in the same direction of about 6 in.

*Quoted from the American Architect of June 29, 1895; as copied from the Building News.

Upon looking for the effect of such a divergence from the perpendicular of these pillars upon the work inside the arcade, *one is surprised to see how little there is to indicate that such a great movement has taken place, for, instead of huge gaps in the groining* [of the entrance porch] *which one would have expected to see, there are only—so far as can be discerned from the ground—some slight openings in the cells.* Coupling this fact with the fact that the three gables lean over at a less angle than the pillars below them, and that some of the work in connection with these gables inside the roof is nearly perpendicular, I am disposed to think that the pillars began to settle and lean outward at a very early period, even perhaps before the gables were erected, *and certainly before the groining of the arcade was put in.*"

It thus appears that the instance invoked by Mr. Statham is misleading and worthless, and that it is the opinion of the expert who knows most about the matter that the vaulting of the porch is later than the leaning piers. (The passages in italics are thus marked by me.)

We will now put a hypothetical case. Supposing that I were to lay before Mr. Pearson the measurements and photographs which have been made of the leaning and bending façades of Notre-Dame and Pisa and other similar façades. Supposing that in the light of these observations and of his own, as just quoted, he should determine that the bending façade of Peterborough had been purposely so constructed, and supposing that he should put himself on record to that effect—would it be honest and fair of Mr. Statham to suppress that fact in debating the question as to whether the façade of Peterborough had been purposely so constructed. This is an exact parallel to what the Editor of the "Builder" has actually done in the case of the Church of St. Quentin. Knowing that M. Benard, the architect who was in charge of the repairs of that church for 36 years, is on record as having considered the widening of that church to be constructive, Mr. Statham has deliberately suppressed that fact, in order to make more probable his own hypothetical explanation, manufactured at a distance from the building and without personal examination of the construction in the light of the facts which I have published.

The controversy of Mr. Statham against the existence of a constructive widening system in the vertical lines of mediæval churches, which I have announced for some fifty churches in Italy, France and at Constantinople, moves from the trivial fact that there are tie-rods in the vaulting at St. Quentin. According to my present memory, assisted by many photographs, out of the fifty odd churches which have been found to exhibit the widening, there are only two which exhibit tie-rods, viz., at St. Quentin and in S.

Lorenzo at Vicenza. If these cases of widening were proven to be accidental, it would not affect the great number of other churches which have no tie-rods; least of all the notable case of S. Mark's at Venice, as verified by an expert's certificate, the existence of which Mr. Statham is also careful not to mention, although it was known to him.

The matter of the tie-rods at St. Quentin's is trivial in itself, but, as treated by the "Builder," it denotes an error of logic which is not wholly confined to its Editor. It is significant of certain methods of architectural restorers and of certain prepossessions in the matter of repairs, which have been universal in the last three centuries.

Since the time when the tradition regarding the widening system was lost, in the decay of Gothic architecture and in the Renaissance reaction against the Gothic, it has been natural that all the ordinary and inevitable signs of decay and weakness in mediæval churches should be connected with that supposed evidence of decay which was found in the leaning verticals, wherever these have existed and were taken note of. These have naturally been considered as accidental, and have consequently appeared to be the cause of all other disorders.

In the next place, it is manifest that no vaulted building is exempt from the disrupting tendencies of thrust, and it is equally manifest that buildings originally constructed with spreading verticals are not thereby guaranteed against the ordinary effects and results of these disrupting tendencies. Hence, whenever an original constructive widening has been accented and increased by accidental causes, it has been natural that the actually accidental effect should be considered as indicating the one and only explanation and cause of the entire supposed deformation.

Tie-rods, therefore, prove absolutely nothing in a contention that given deformations were wholly accidental. They may show simply that the restorer mistook constructive arrangements for accidental deformations, or they may show that constructive divergences have accidentally increased to a dangerous extent, or they may show that other accidental deformations have been attributed to the wrong cause—viz., to a constructive widening.

Thus I differ radically with Mr. Statham when he says of me: "If he had found evidence that they [the tie-rods] were ancient, it would have made short work with his theory."

If the church of St. Quentin was built with diverging piers (as held by M. Benard), does that argue that the building was guaranteed from the consequences of careless building or from the disintegration occasioned by vaulting thrust? By no means. Tie-rods might have been called for, at any date, from a time imme-

diately following the erection of the building down to the present year. The original divergence might have been accented and increased by thrust to a point which made the tie-rods necessary. A very few inches of accidental movement would be sufficient to make this advisable. Even if the vaulting had fallen in, it would not prove that there was not originally a constructive divergence. In fact, such a divergence, if carelessly constructed, or of too great a spread, might cause exactly such a catastrophe.

Mr. Statham's entire sentence, of which a portion has just been quoted, does him no great credit: "If he had found evidence that they were ancient it would have made short work with his theory, and he has apparently not tried to get any evidence." Mr. Statham knew, when he wrote that sentence, that I had taken pains to ascertain the opinion of the expert who had the best general knowledge of the history of the church and of its present condition. I had published this opinion in the very article which he was endeavoring to discredit by this trick of suppression. I have the highest French authority for stating that it was M. Benard who first brought to the attention of students the celebrated mediæval architectural sketch-book of Villard de Honnecourt, and that M. Benard was an expert of the most reliable character.

The same disposition to mislead his readers is apparent in Mr. Statham's suppression of the opinions of Italian experts. The one man, who by virtue of lifelong acquaintance with the history of St. Mark's at Venice, and his own literary contributions to that history, and by virtue of his own lifelong contact with the repairs of the church of which he was then in charge, was best qualified to pass an expert opinion on that church, in 1901, was Commendatore Pietro Saccardo. St. Mark's is a much more important church than that of St. Quentin. It has consequently been much more carefully measured and published by me, and has been made the subject of a special monograph. Saccardo's official approval of these observations has also been published. All this was known to Mr. Statham, and all this is carefully ignored in order to make good his own personal idea about the widening refinement.

His personal idea is that to build a church with outward bending or curving verticals is "one of the most clumsy, useless and stupid things that could possibly have been done." It would have been an awkward fact for this thesis if his readers should know that the finest church in Italy has been officially credited by the architect in charge with having this construction. Consequently that fact is carefully suppressed.

The "Builder's" argument is otherwise to the effect that "the widening of the piers at the upper portion would have the effect, not of increasing, but of diminishing the apparent height of the

building, and this at a time when the French architects were vying with each other in the endeavor to increase height. The whole notion is too preposterous to do anything but laugh at."

The "Builder" appears not to be familiar with Viollet-le-Duc's proofs, recently quoted with approval by M. Choisy, that the architects of twelfth and thirteenth century Gothic strove to keep down the height of their buildings, and that their great height is due to compelling constructive causes (contrary to the usual idea and preconceived opinion).*

I have shown the widening refinement to be originally Byzantine and Romanesque (that is to say, it was first designed for churches of comparatively low proportions), and I have shown that it disappeared during the late Gothic and soon after the really exaggerated heights came into Gothic vogue. However, a glance at Fig. 4 for the Amiens nave in the November Number of the Architectural Record seems to give the best answer to the objection of the "Builder." For the sake of the gracefully bending lines and the more open and airy effect of the upper nave, for the sake of eliminating that frightful rigidity and coldness which the taste of the "Builder" and the temperament of Mr. Statham have grown not only to tolerate but to consider as a necessary standard of perfection, the architects of Amiens may have been willing to sacrifice a little of the effect of height, and they did well, in my opinion, to do as they did.

There are, however, very few of us who estimate the height of a lofty nave by twisting the neck so that we look directly upward. In so far as the eye takes in the height of a building naturally, and without wrenching of the neck; in so far, that is, as the comparative width between the same piers at the pavement and at the capitals, is estimated at some distance from the standpoint of the observer, in so far such a perspective convergence of lines as holds for a plane surface near the level of the eye, is very materially diminished. Our impressions of height in interiors are not determined by converging lines to anything like the extent which holds of impressions of length or distance on a plane surface. The proof of this is that photographs taken with the camera slanting upward appear freakish and unnatural. This shows that we are so accustomed to discount convergence in rising lines that we do not recognize it in a photograph, although shown as we actually see it. On the other hand, convergence of lines on a plane surface, as shown by a camera, has no abnormal appearance.

Estimates of height in lofty interiors are naturally made by the eye in a normal or not too inconvenient position, looking toward

*Dictionnaire III., pp. 187, 197. Choisy, Histoire de l'Architecture, II., p. 413.

the depth of the building, and contrasting with the entire height as seen *there*, the objects near the pavement. These are again related by the eye to the average height of the human body. In estimating the height of interiors, the height of the human body is the natural norm, and the objects on the plane surface which are related to this norm, in their turn become standards of height.* The easiest position for the head of the observer is the position in which an estimate of height is most easily and most naturally made, and in this position the more distant objects on the plane surface are related to the height as visible at the same distance. Therefore, in the perpendicular direction converging lines have very little to do with our estimates of height, either in exteriors or interiors, and the builders of the Middle Age were by no means "clumsy" or "stupid" in slightly opening out their vertical lines in interiors.

It is we who are too clumsy to appreciate their delicate art, and too stupid to admit that it existed.

As the entire art of the Middle Ages was experimental, it is natural that some buildings should have more widening than others, and that some should have too much. Sta. Maria della Pieve, at Arezzo, and the church of St. Quentin may be open to this criticism, but it is the extreme cases which make the best photographic illustrations, and furnish the easiest demonstrations in so novel a topic. The truth is, that at St. Quentin the nave is seen from the entrance (and also in photographs from the entrance), through the arches of a very low vaulting, which supports the organ loft. The lines of these arches curve over against the curving piers so as very much to exaggerate their apparent leans by this optically illusive contrast. This effect was, of course, not foreseen by the mediæval architect.

Meantime, the Editor of the "Builder," having come round to the admission that perspective illusions were practised by mediæval builders, may possibly condescend to notice the fact that the only extant systematic publications on the subject are those which I have made. This fact he has carefully suppressed in his recent admission of the existence of mediæval perspective illusions, although several caustic and slighting notices appeared in the "Builder" during the publication of the series of articles in which the existence of these illusions was demonstrated in the Architectural Record. My first announcement that "perspective illusion was practised on a most extensive scale throughout Italy and the whole of Europe in the Middle Ages" was made in 1874† in the words above quoted.

The publication in which this announcement was made was the

*It is well known that St. Peter's appears larger when filled with people. It is also well known that the over-enlargement of details like the cherubs of Bernini's fonts, which are seven feet high, has diminished its effect of size.

†Scribner's Monthly, August, 1874, p. 440.

first publication ever devoted to this subject. Aside from the confusion of ideas on the physiology of vision in interiors which afflicts the Editor of the "Builder," he has failed to reflect that, as I have done more than anyone else to insist on the existence of perspective illusions in mediæval architecture, I may be safely trusted not to antagonize the results of my own observations. He wholly fails to notice that such observations have been made by me.

It farther appears that the Editor of the "Builder" has discovered "a certain condescension in foreigners" (and *this time* the foreigners are Americans) in regard to English Gothic. He suggests that I should "condescend" to study English Gothic, in order to discover further aberrations of the class which he claims are non-existent anywhere, with the illy-concealed purpose of "wiping up the floor" with me, after I have fallen into the trap which he has so discreetly baited at Salisbury. I have seen the piers at Salisbury, and, so far, have not mentioned them in any publication on constructive widening.

Mr. Arthur Hill, F. R. I. B. A., of Cork, has, however, discovered, measured, and photographed a constructive widening of the nave piers in St. John's at Chester, and it may be, at some future day, that I shall mention other English or British instances.

Wm. H. Goodyear.

(To be continued.)

INTERIOR FIREPROOFING.*

[*The following is the second of a series of Technical-Industrial Reports upon a certain System of Fireproofing, made to the Manufacturers by the well-known expert on Building Construction, Mr. William J. Fryer.*]

In determining what material shall be used in the construction of a fireproof building and in what form such material shall be used, one pre-requisite should be demanded; the material and form alike should be solid, without voids or spaces or hollows. Concealed spaces are extremely dangerous by reason of the bursting power of confined air when expanded by heat. Expanded air will run an engine, and will and has overthrown brick walls, partitions and floor constructions.

Solid Material a Necessity

A brick wall is popularly supposed to be solid, but as a matter of fact it is full of voids. In laying brick the bricklayer ordinarily depends on one trowel of mortar spread out to bed seven brick stretchers, the first brick laid to the line and so on until the seven are laid, instead of embedding brick for brick, each time going to the mortar box for a trowel of cement, thus ensuring solid work, with the bed joint, cross joint, and cellar joint filled solid with mortar. "Tip" joints, which are merely the vertical joints blinded with mortar, so as not to show to the eye, and with heading courses laid where the joints should be solid throughout, voids are left everywhere, and indeed it may truthfully be said that more or less unfilled joints are around every brick in a wall as commonly laid, all by reason of the desire to save in the expense for labor and mortar. Only when all brick are rubbed up and all joints filled by one operation, or each course is grouted in, can a wall be called solid. A brick wall, a brick partition and a brick segmental arch between steel floor beams, prop-

Voids or Spaces in Brick Walls

*For previous article see November Number.

erly laid up in good cement mortar, is the standard by which all other material and combinations of material and forms into which such materials may be worked, are to be judged.

Concrete, unless made with Portland cement, clean, sharp sand and clean broken stone or gravel in their proper proportions—not using ashes, cinders, clinkers or any other partially carbonized material—in the mixture, and the concrete well tamped in laying, deserves small confidence. Instead of gravel or small broken stone, cinders are used in order to keep the mixture from weighing too much, as lightness is an important consideration for floors and partitions. A mixture such as is commonly provided, the ingredients, such as they are, improperly mixed by unskilled labor, and hurriedly laid in place, will be found full of voids and incapable of resisting fire and water or both combined. In the progress of fireproofing during the past twenty years, the common brick arch between floor beams has given way to systems that form a level ceiling in themselves and weigh less than solid brick. Certain materials and forms have been used and passed almost out of memory. One of these was the Lime of Tiel and ashes, moulded into hollow blocks; and the architects and others who were responsible for such use have, to use a slang phrase, tried to forget it. A fire occurred on the upper floor of a building in which these plaster floor blocks were installed, and the water used in putting out the fire carried havoc and destruction through every lower floor to the cellar. The so-called flat-arch system of burnt clay hollow blocks has become the most extensively used. In reality the blocks do not form a flat arch at all; the blocks have slanting sides, but not the true radiating lines of a flat arch, and the cohesiveness of the cement mortar joints is depended upon to prevent the blocks sliding upon each other. In a true flat arch no two radiating lines are alike between the key-stone and the abutment. With the material—burnt clay—no exception can be taken. The thickness of the material, particularly that of the bottom plate of the hard burned tile is insufficient to resist any considerable heat, the under portion of the tile being exposed to more heat than the rest of the material and breaks by unequal expansion. The blocks or tiles are hollow, each divided into a number of small compartments or cells running their full length. Here is where the danger lies: the air thus confined when expanded by heat in case of fire.

Concrete of Improper Mixtures

Abandoned and Defective Systems

Quite recently, in the latter part of September last, an important test of a hollow tile arch was made in the vicinity of New York, and although the test was an utter failure of the arch, the result is likely to be far-reaching and of greater consequence than any test of floorings made in many years past. This arch was constructed by the manufacturer and representative engineer with the main object of proving that the National Board of Fire Underwriters was wrong in refusing to sanction a twenty-foot span arch, constructed as this was, for one of the largest warehouse buildings now being erected. This arch was constructed to cover a bay twenty feet square, in the form of a groined arch, the rise in the center being fifteen inches. The tiles were six inches in depth, filled on top with concrete, the concrete being three inches in thickness at the crown of the arch, eighteen inches in thickness at the haunches, and over the concrete the finished cement flooring. Presumably this arch was carefully put together for testing purposes and therefore constructed better than the same arch would have been in actual practice where no special precautions are taken and where the work is hurriedly done. A uniformly distributed and comparatively light load of 250 pounds on each superficial foot had been placed on the floor surface above the arch, and with this load the arch should have stood a better test from fire underneath than if no load had been placed thereon, as the superimposed load kept the construction below evenly compressed. The load was intended to be further increased to fifteen hundred pounds per superficial foot. The abutments for the arch were adequate and remained intact, as did the wall which supported the arch. Full preparations had been made for taking temperature, and also for noting any deflection that might occur in the arch. The fire was started at 11:50 A. M. At 12:07 P. M. the arch collapsed completely; that is, in seventeen minutes time. The temperature at the time of the collapse was about 1,700° F. The quick and complete failure of the arch dumbfounded every one present, even those who came with well-founded dislike of wide span arches between floor beams, and opposed to such unless reinforced by steel beams. Remembereing that the supporting walls and the abutments were not affected, what caused the collapse? It certainly was not the load, because the arch was sustaining the load before the fire test was applied. The heat did something—What did it do? It expanded the air in the cells of the tile and thereby inevitably brought sure and sudden destruction. This force must be reckoned with in the future.

A Test of Hollow Tile Arches

Thus these various systems of fireproofing are encompassed with elements of doubt and uncertainty for their users as to which one is the superior or if any merit full reliance. In every line of work progress has been and is constant and unceasing. In fireproofing there is a system, not so generally known as many others, being newer, but which is superior to any other when judged by all known requirements of lightness, solidity, strength, fire resisting, durability, practicability, proven by tests and actual use.

A Superior System of Fireproofing

"HECLA FIREPROOFING"—PATENTED.
The System of Real Fireproofing.

The Hecla Iron Works, Brooklyn, N. Y.



BINDING
MAR 3 1

NA
1
A6
v.16

Architectural record

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY